Getting Started with GPES2 Series

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Revision History

Revision	Date	By	Remark
1.0	2009/02/23	Arthur Chen	First edition.

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1 INTRODUCTION

1.1 General Description

The easy-to-use SOUNDPLUS® II is an enhanced version of easy-to-use SOUNDPLUS® (GPES). Many features have been added in easy-to-use SOUNDPLUS® II to increase the performances and functions. Herein, we call GENERALPLUS easy-to-use SOUNDPLUS® II as GPES II. There are two series in GPES II product line: Large (4I/8O) and Small series (4I/O), abbreviated as Large and Small herein.

1.2 How to Choose the IC Body in GPES2 Series

The following essentials will help you to choose the proper GPES2 series for your products:

◆ Number of IOs

Two types of IOs are available in GPES2 series: 4I/O (Small series) & 4I/8O (Large series). User should select these two series based on the specification needs.

◆ ROM Size/Type

ROM size is the key to the storage for speeches. In small series, the max. ROM size is 128KB. When speech size is over 128KB, large series is recommended.

1.3 Family Overview

Small Series:

Body Name	Working Voltage	ROM Type	ROM (Byte)	I/O	Audio Output	LVR
GPES203B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	12K	4 I/O	PWM	-
GPES207B1	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	24K	4 I/O	PWM	-
GPES209B1	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	32K	4 I/O	PWM	-
GPES212B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	40K	4 I/O	PWM	-
GPES215B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	48K	4 I/O	PWM	-
GPES221B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	64K	4 I/O	PWM	-
GPES231B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	96K	4 I/O	PWM	-

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Large Series:

Body Name	Working Voltage	ROM Type	ROM (Byte)	I/O	Audio Output	LVR
GPES204B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	16K	4I / 8O	PWM	v
GPES208B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	28K	4I / 8O	PWM	v
GPES210B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	32K	4I / 8O	PWM	v
GPES213B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	44K	4I / 8O	PWM	v
GPES213B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	44K	4I / 8O	PWM	v
GPES216B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	52K	4I / 8O	PWM	v
GPES216B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	52K	4I / 8O	PWM	v
GPES220B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	64K	4I / 8O	PWM	v
GPES220B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	64K	4I / 8O	PWM	v
GPES230B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	96K	4I / 8O	PWM	v
GPES230B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	96K	4I / 8O	PWM	v
GPES240B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	128K	4I / 8O	PWM	v
GPES240B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	128K	4I / 8O	PWM	v
GPES242A	2.4V~5.5V@4MHz 3.6V~5.5V@6MHz	OTP	128K	4I / 8O	PWM	v
GPES250B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	160K	4I / 8O	PWM	v
GPES250B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	160K	4I / 8O	PWM	v
GPES260B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	192K	4I / 8O	PWM	v
GPES260B2	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	192K	4I / 8O	PWM	v
GPES270B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	224K	4I / 8O	PWM	v
GPES270B1	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	224K	4I / 8O	PWM	v
GPES280B	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	256K	4I / 8O	PWM	v
GPES280B1	1.9V~5.5V@4MHz 3.6V~5.5V@6MHz	MASK	256K	4I / 8O	PWM	v
GPES282A	2.4V~5.5V@4MHz 3.6V~5.5V@6MHz	OTP	256K	4I / 8O	PWM	v

Note: GPES242A is able to simulate 4I/O or 4I/8O via optional configurations.

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1.4 One-Time Programmable (OTP) IC

GPES2 has two One-Time Programmable (OTP) ICs: GPES242A and GPES282A. GPES242A IO can be either 4 I/O (small series) or 4I/8O through options; therefore, GPES242A is able to simulate series of which ROM size is less or equal to 128KB. On the other side, GPES282A simulates those greater than 128KB and I/O in large series. The functions of these two OTPs are simulation and verifications for user's programs. In addition, OTP can be made to end-product of which program can be revised anytime to fulfill necessary specifications.

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2 DEVELOPMENT ENVIRONMENT

2.1 General Description

Generalplus offers lots of documents, software, and hardware for GPES2 development purpose. We will list all of these useful tools and documents that can help users getting started with GPES2 development easily and quickly.

Document / Software / Hardware	Writing Code	Debugging	Verifying	Code Release
Document				
Data Sheet	V			
Confirmation Sheet				V
GPES II Programming Guide	V	V		
GPES282AA (OTP) Design Guideline			V	
Software				
GPES II IDE	V	V	V	
G+ OTP/MTP All Writer			V	
G+ USB All Writer			V	
GPES2 Option Tool			V	V
Hardware				
GPES II EMU Board	V	V	V	
GPES2 Piggyback			V	
GPES2 OTP Demo Board			V	
G+ ALL WRITER			V	
G+ USB ALL WRITER			V	
GPES2 OTP Daughter Board			V	
Multi-Programming Adapter			V	
GPES2 OTP COB			V	

Note: If releasing code is for OTP version, it needs GPES2 option tool, which mask version does not need.

2.2 Document

The following documents are needed for GPES2 development. You may apply these documents by given the document no. listed in the table through your convenient channel.

Document Title	Document No.	Acquire
Data Sheet	-	Website
Confirmation Sheet	-	Website
GPES II Programming Guide	GPES2-10	contact us
GPES282A (OTP) Design Guideline	GPES282A-16#1	Website

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2.2.1 Data Sheet

Each IC has its corresponding data sheet. Mostly of them can be downloaded from our web site. The data sheet mainly introduces IC specification, pin count, DC characteristics and reference circuit.

2.2.2 Confirmation Sheet

When an application is developed completely, a confirmation sheet must be submitted before releasing your code for production. The confirmation sheet offers software and hardware checklist that users should know. You may download the confirmation sheet from our web site at www.generalplus.com.

2.2.3 GPES II Programming Guide

The programming guide introduces users in designing programs, legal instructions, available functions and registers. After GPES II IDE is installed, this document can be found from Start → Generalplus → GPESII → Help Topics. Or you may apply this document via Generalplus sales representatives.

2.2.4 GPES282A (OTP) Design Guideline

This document describes the differences between GPES282A OTP and GPES250B2 / GPES260B2 / GPES270B1 / GPES280B1 real chips and it also lists all necessary information about GPES282A development environment, application circuitry, etc. You may obtain this document from our web site.

2.3 Software Tool

The following list is the software tool you need to develop codes for GPES2. Please contact us to acquire these software tools.

- **GPES II IDE**
- **G+ OTP/MTP All Writer**
- **G+ USB All Writer**
- **GPES2 Option Tool**

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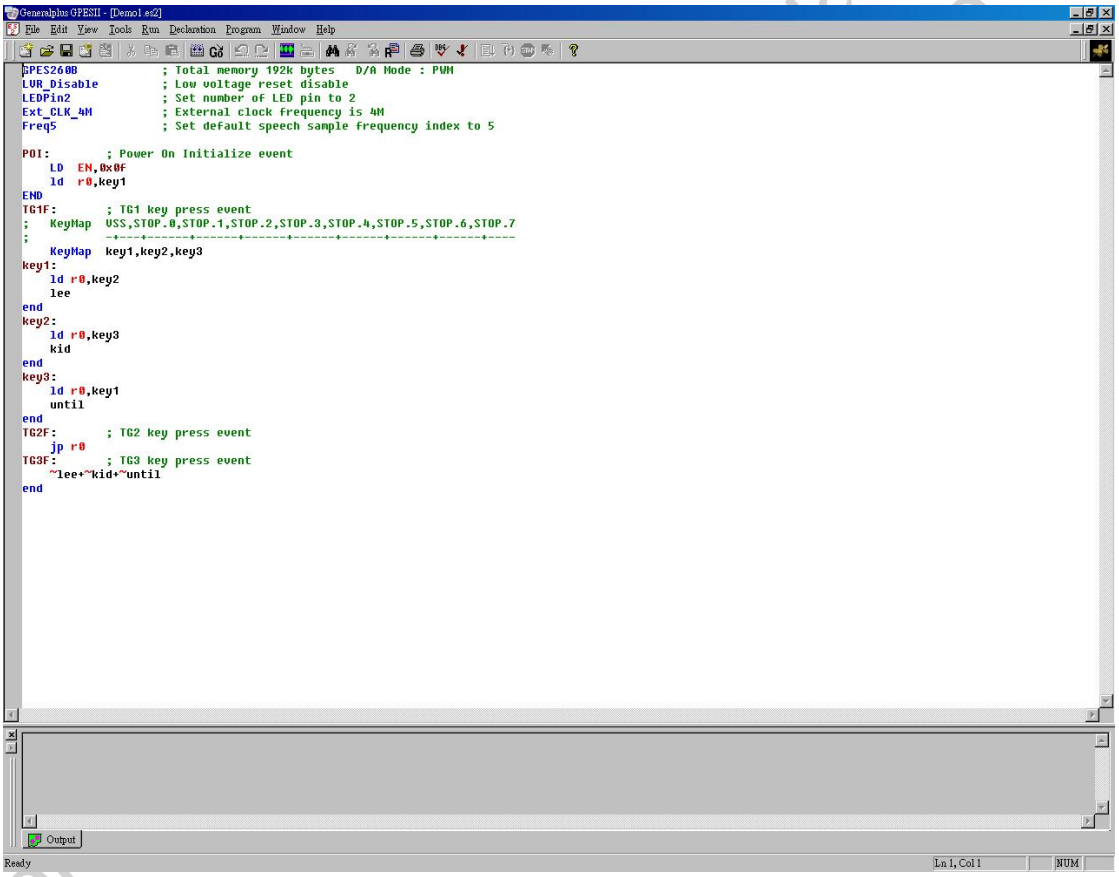
2.3.1 GPES II IDE

GPES II IDE is an integrated programming tool for easy format language, designed by Generalplus. Users can use this tool to edit, compile and debug a program. Using GPES II IDE, users may not be familiar with assembly language since GPES II syntax is much easier than assembly language. Users learn the GPES II IDE instruction sets rather than detailed register controls. After GPES II IDE is installed on a PC, please press F1 or select Help from Menu to open an IDE user's guide. The IDE user's guide also can be found by Start → Generalplus → GPESII. Please contact us to obtain the latest version of GPES II IDE. The following figure is the GPES II interface.



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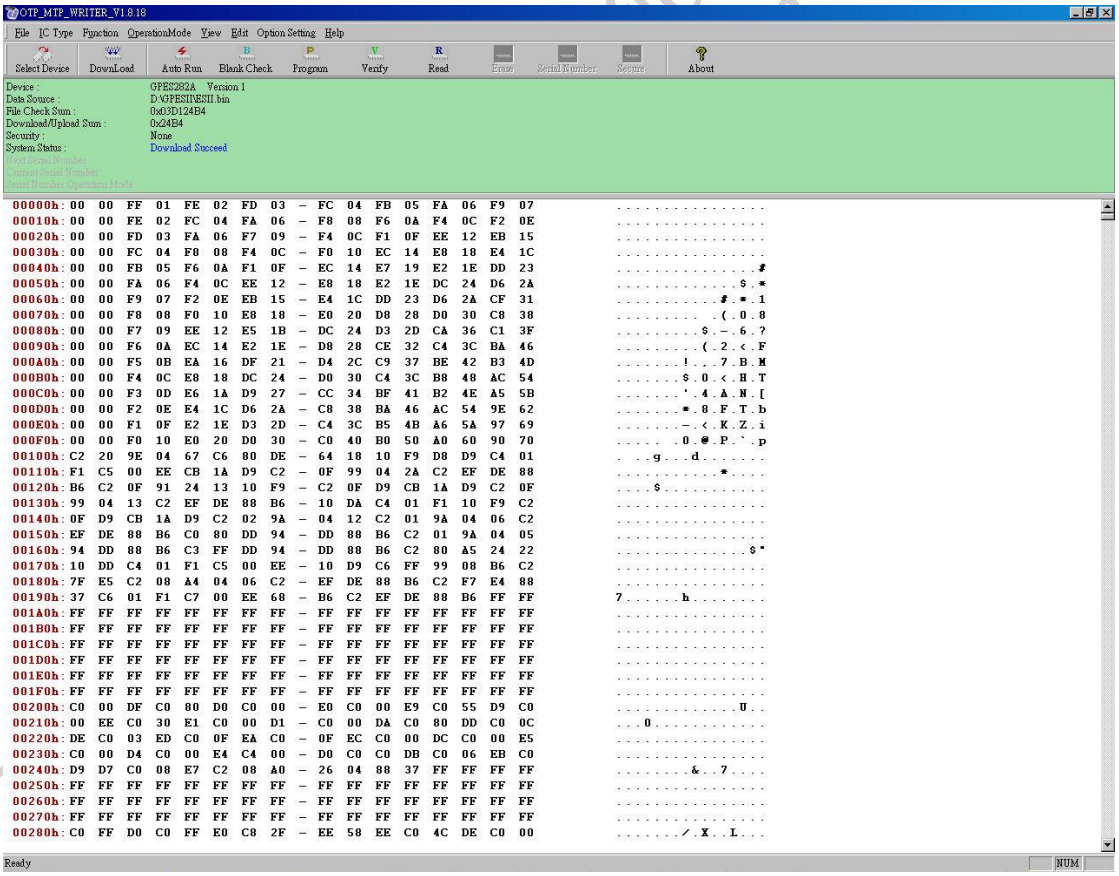
2.3.2 G+ OTP/MTP All Writer

G+ OTP/MTP All Writer is an OTP (One-Time Programmable) programming tool. This tool must be co-work with a G+ ALL WRITER (a hardware device with RS-232 interface). In GPES2 series, GPES242A and GPES282A OTPs are both used to verify user's codes (programs). When a program is completed, it can be programmed onto OTP for function verification. It is much easier than mask IC that normally keeps users waiting for longer time before preceding the verification procedure. In addition to the function verification, these OTPs are also ready to be applied directly on the end-product, and yet, its code can be modified anytime if needed. The All Writer User's Manual can be found by Start → Generalplus → G+OTPMTPAllWriter. The G+ OTP_MTP Writer must be v1.8.18 or later versions to support newest GPES2 series IC. Please contact us to obtain the latest version of G+ OTP_MTP Writer. The following figure is the interface.



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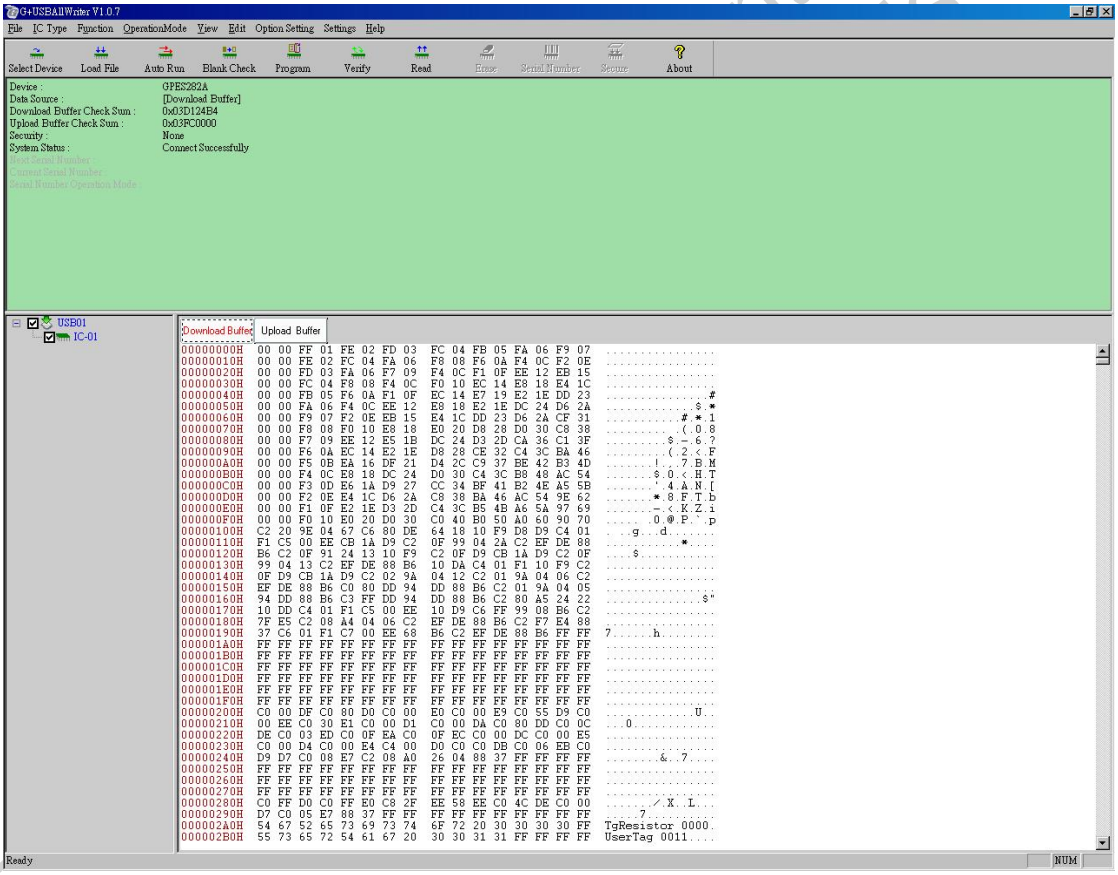
2.3.3 G+ USB All Writer

Similar to G+ OTP/MTP All Writer, G+ USB All Writer is also an OTP (One-Time Programmable) programming tool, but with USB interface, meaning a G+ USB ALL WRITER (a USB hardware device) is a must. Simply speaking, G+ OTP/MTP All Writer (RS-232 software) co-works with G+ ALL WRITER (RS-232 hardware). The G+ USB All Writer (USB software) co-works with G+ USB ALL WRITER (hardware with USB). The advantage of using USB Writer is the download and programming speeds are faster than using RS-232 Writer. The G+ USB All Writer User's Manual can be found by Start → Generalplus\ G+USB All Writer 1.0.7. (where 1.0.7 is the version of Writer, may be varied). The G+ USB All Writer must be v1.0.7 or later versions to support newest GPES2 series IC. Please contact us to obtain the latest version of G+ USB All Writer. The following figure is the interface.



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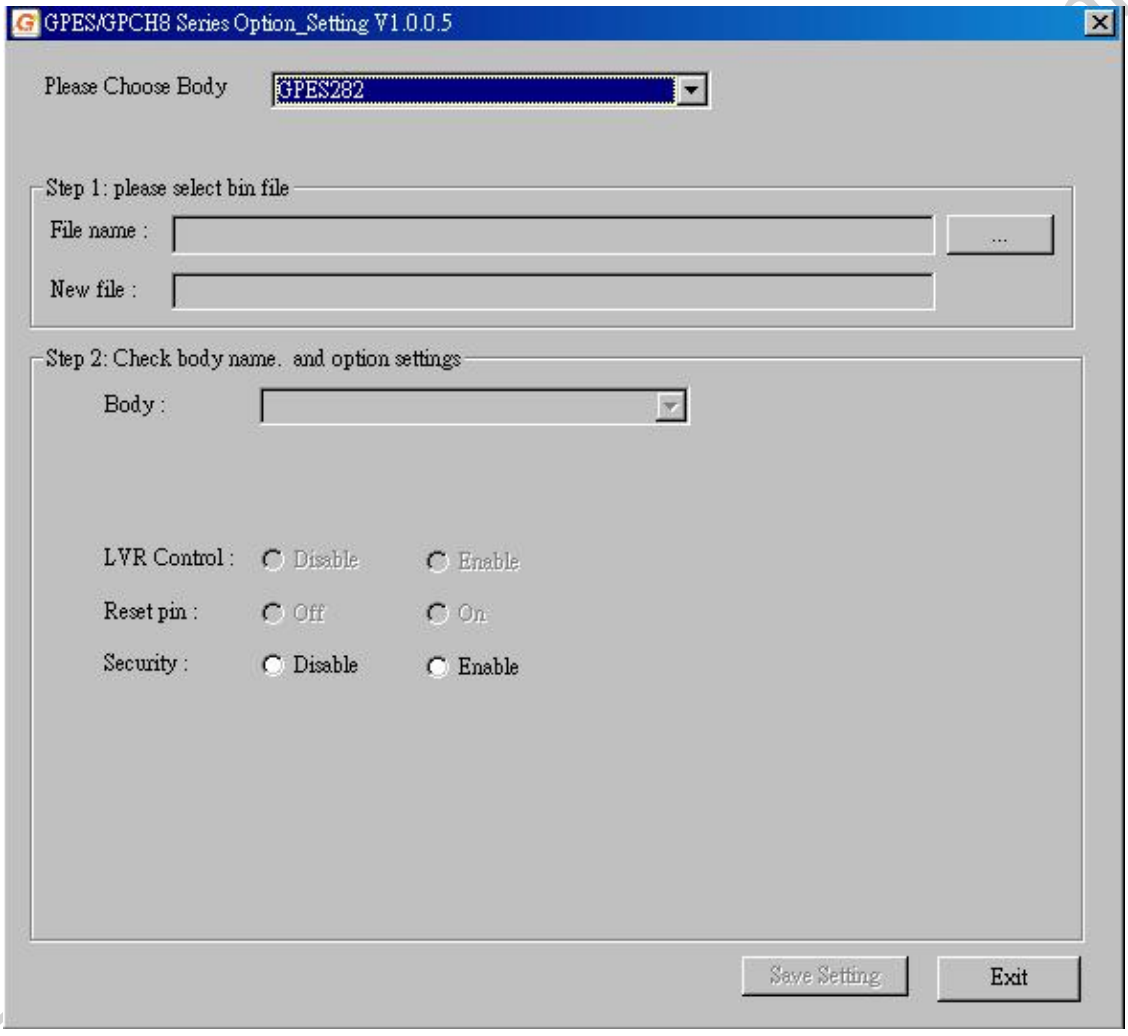
2.3.4 GPES2 Option Tool

GPES2 Option Tool is especially for GPES2 OTP versions. Generally, some options in each OTP can be designated via the Option Tool, e.g. Security function in GPES282A. Therefore, to prevent option is incorrectly made, user **MUST** use the Option Tool to confirm the option settings before programming an OTP. But user has to note that if user wants to release code for MASK IC, the binary file **CANNOT** be transformed by this tool. This tool is included in G+ OTP/MTP All Writer and G+ USB All Writer. All Writer must be installed on a PC before using the Option Tool. To run the tool, click [All Writer Menu Bar\Option Setting\GPES2 OTP]. The following diagram is the GPES2 Option Tool.



Note: Before programming an OTP, make sure the options are correctly set for the user's binary file via the GPES2 Option tool and use new file generated by the Tool for programming.

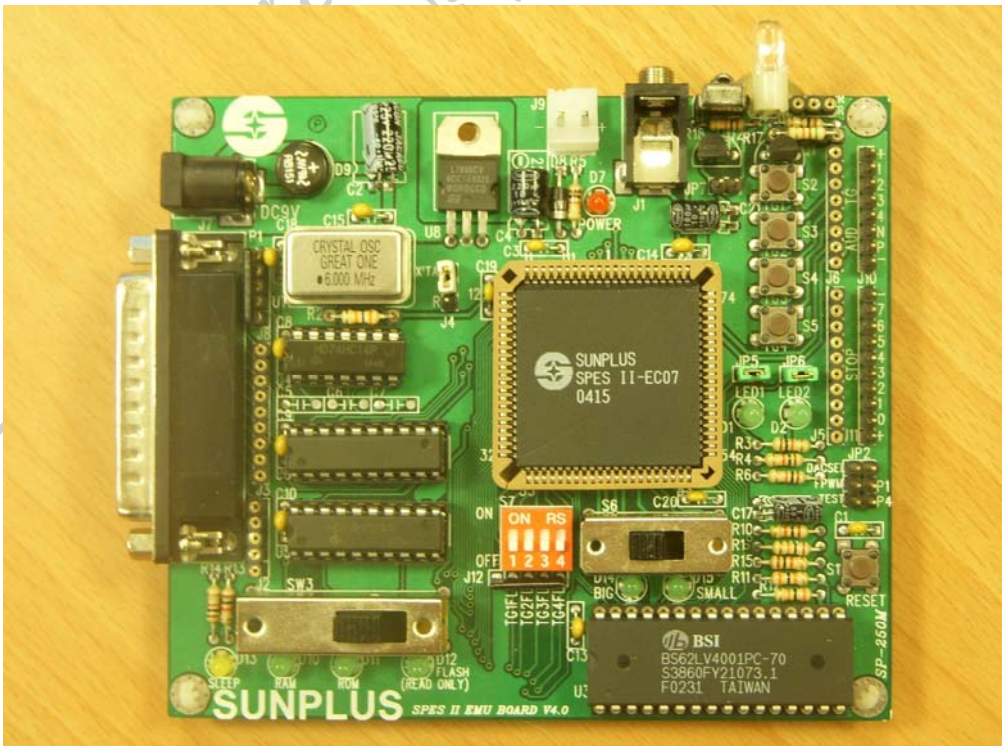
2.4 Hardware

The following list is the hardware device you need to develop your application on GPES2 series. Please contact us to obtain these hardware devices.

Hardware	Hardware No.
GPES II EMU Board	GPES II-E-40
GPES2 Piggyback	GPES II-P-30 (V3.0) GPES II-P-30B (V3.0B)
GPES2 OTP Demo Board	GPES2-OD-10
G+ ALL WRITER	OTP/MTP-W-11-M0A
G+ USB ALL WRITER	OTP-W-22
GPES2 OTP Daughter Board	OTP/MTP-W-11-M28
Multi-Programming Adapter	OTP-W-22-MODE0102
GPES2 OTP COB	GPES242A-O-10 (GPES242A OTP) GPES282A-O-10 (GPES282A OTP)

2.4.1 GPES II EMU Board

GPES II EMU board is a primary development board for GPES2 series. User can use it to develop, simulate, and verify a program. The EMU board supports three memory types for program verification: SRAM, FLASH and EPROM. In General, SRAM is the mode while users are developing codes; thus, programs can be downloaded on EMU board after being compiled. However, programs in SRAM will be erased after power off and therefore, users should program the codes on FLASH or EPROM after codes are completely developed that eliminates downloading procedure every time power is ON. For more information about EMU board, please refer to GPES II Programming Guide. The following diagram is the GPES II EMU board v4.0.



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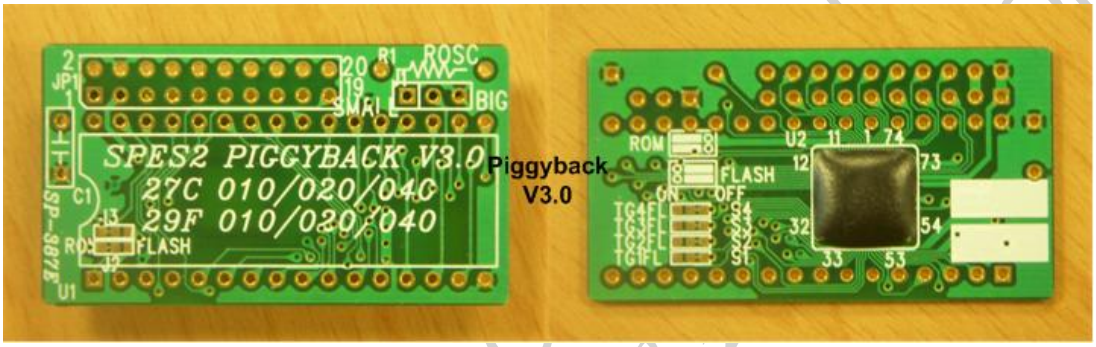
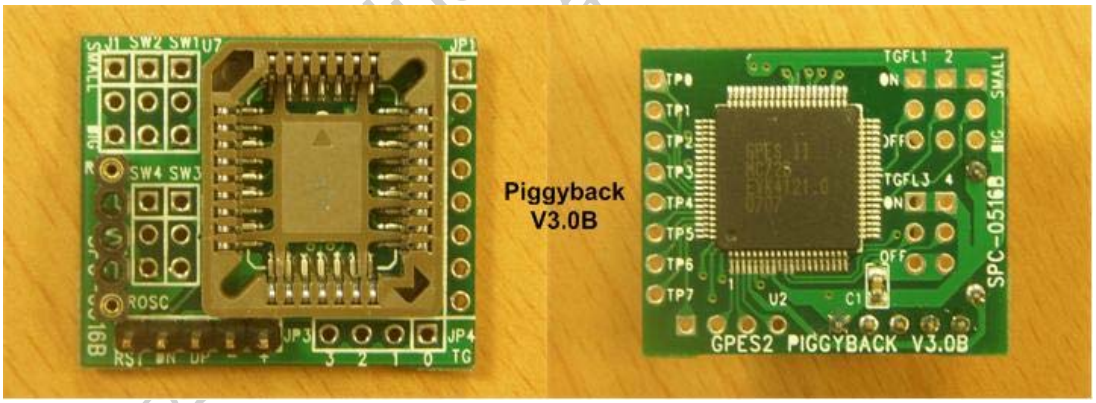
2.4.2 GPES2 Piggyback

The GPES2 Piggyback is to testify and demonstrate user's code. After code is completed, it can be executed on EMU board or piggyback with an external memory. Like EMU board, a GPES II EMU chip is embedded on the piggyback that code can be programmed on a FLASH or EPROM to be executed. Comparing with EMU board, piggyback is much smaller that is very suitable for demonstration purpose. Moreover, the GPES II EMU chip on the piggyback is able to simulate Large series and Small series functionalities. For more information about GPES2 piggyback, please refer to GPES II Programming Guide. The following pictures are the GPES2 piggyback v3.0 and v3.0B.





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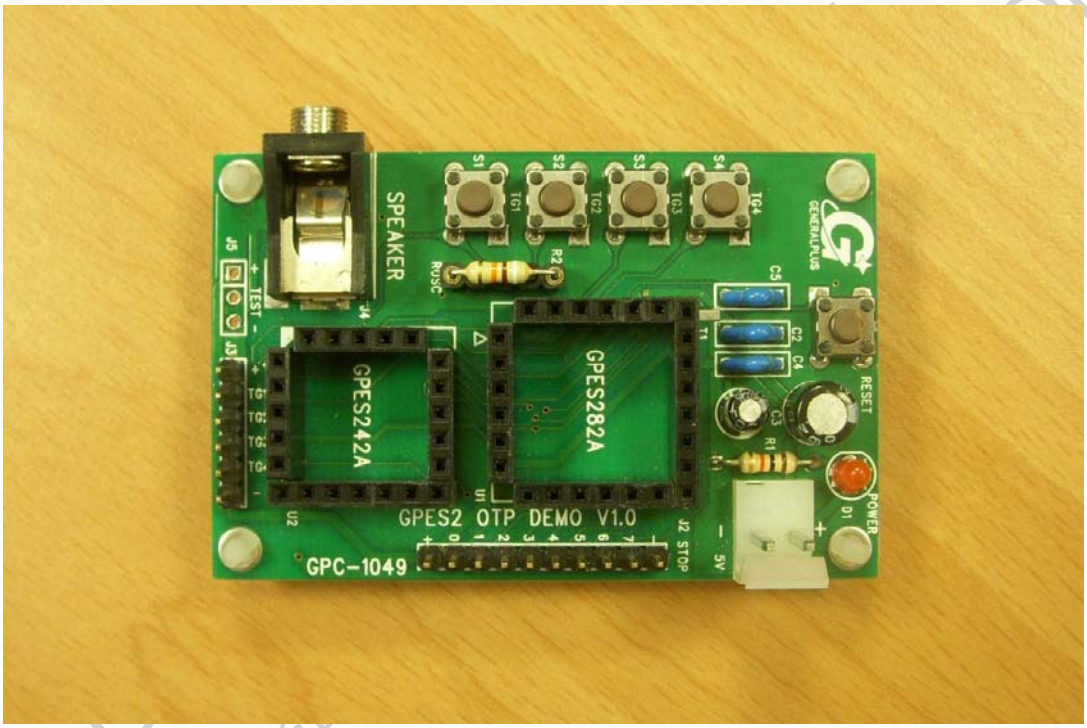
2.4.3 GPES2 OTP Demo Board

After GPES2 OTP is programmed, it can be inserted on the GPES2 OTP Demo board to execute the program. The GPES2 OTP Demo board is designated for OTP use only; user can put GPES242A or GPES282A on it. The advantage of this package is simple and fast to program user's code on ALL WRITER and execute it on OTP Demo board, no additional circuitry board is necessary. For more information about GPES2 OTP Demo board, please refer to GPES II Programming Guide. The following picture is GPES2 OTP Demo Board v1.0.



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2.4.4 G+ ALL WRITER

G+ ALL WRITER is an OTP programming hardware device which has to work with G+ OTP/MTP All Writer (software tool) and corresponding Daughter board. In GPES2 series, the Daughter board, MODE28, must be used to program GPES2 OTP. The All WRITER User's Manual can be found by Start → Generalplus → G+OTPMTPAllWriter. The following picture is the G+ ALL WRITER.

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2.4.5 G+ USB ALL WRITER

Similar to G+ ALL WRITER, G+ USB ALL WRITER is also an OTP programming hardware device with USB interface which has to work with G+ USB All Writer (software tool) and corresponding Daughter board. In GPES2 series, the Daughter board, MODE28, must be used to program GPES2 OTP. The major difference comparing with G+ ALL WRITER is that G+ USB ALL WRITER must connect with a USB port on PC. The download speed is faster and USB ALL WRITER is able to program up to 8 OTPs via the Multi-Programming Adapter. The USB ALL WRITER also features the stand-alone programming function that allows users to pre-load their codes to USB ALL WRITER and simply press the “write” key on the WRITER to start programming OTP, no PC connection required. The G+ USB All WRITER User’s Manual can be found by Start → Generalplus\ G+USB All Writer 1.0.7, where 1.0.7 is the version of Writer, may be varied. The following figure is the G+ USB ALL WRITER.

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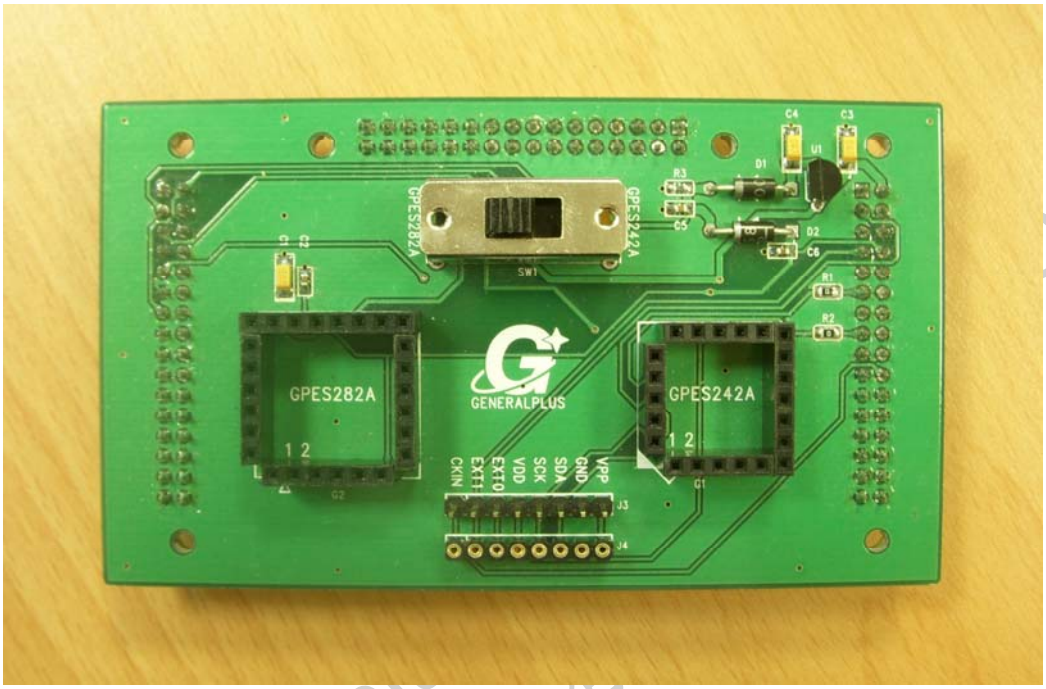
2.4.6 GPES2 OTP Daughter Board

GPES2 OTP Daughter board is used while programming the GPES2 OTP. The following picture is the Daughter board.



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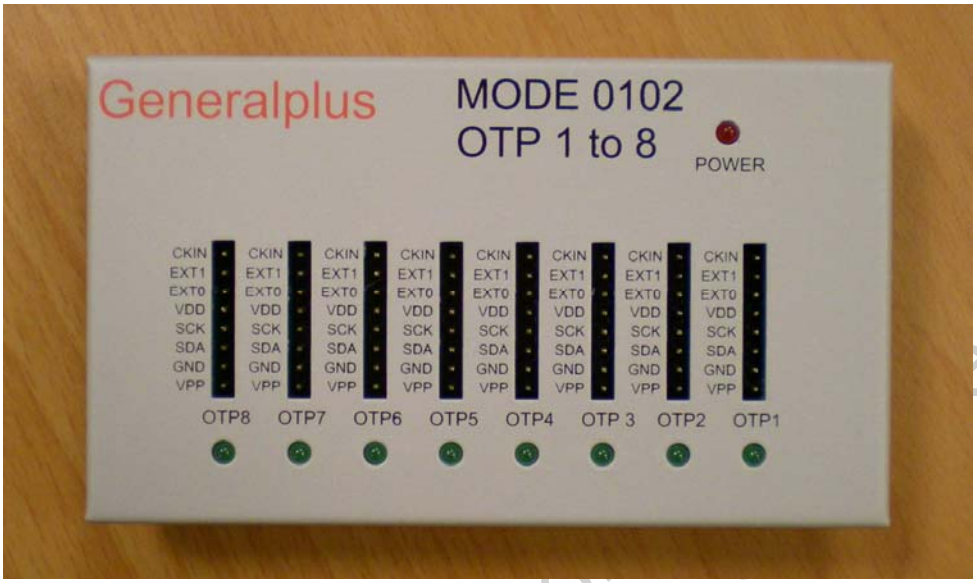
2.4.7 Multi-Programming Adapter (MODE 0102)

The Multi-Programming Adapter is to program more than one OTP at a time. Each G+ USB ALL WRITER is able to program up to 8 OTPs at once.



To program 8 OPT at once, the MODE0102 adapter must be utilized to connect with 8 OTPs. The following picture is an example of programming 8 OTPs together. Please use parallel wiring connecting MODE0102 adapter (mounted on G+ USB All Writer) with 8 OTP programming boards. Be aware that the wiring should be as short as possible to avoid noise interfere during programming.

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2.4.8 GPES242A/GPES282A OTP

Generalplus offers the COB packages for GPES2 OTP (GPES242A/GPES282A). Users can program this OTP package via G+ ALL WRITER and further testify it on GPES2 OTP Demo board. The following picture is the GPES2 OTP COBs.

GPES242A

GPES282A

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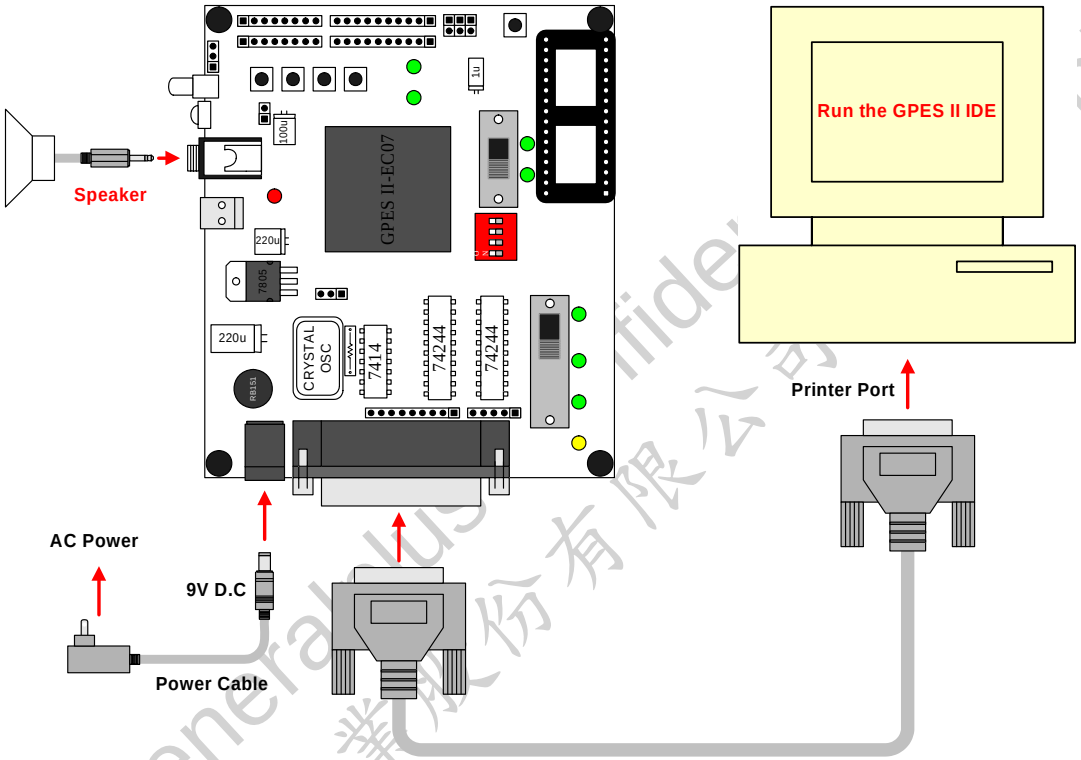
3 HOW TO USE THE GPES II IDE

3.1 Create a New Project

After installing GPES II IDE on PC, users should follow the steps below to start a project.

- Connect the hardware devices as follows:



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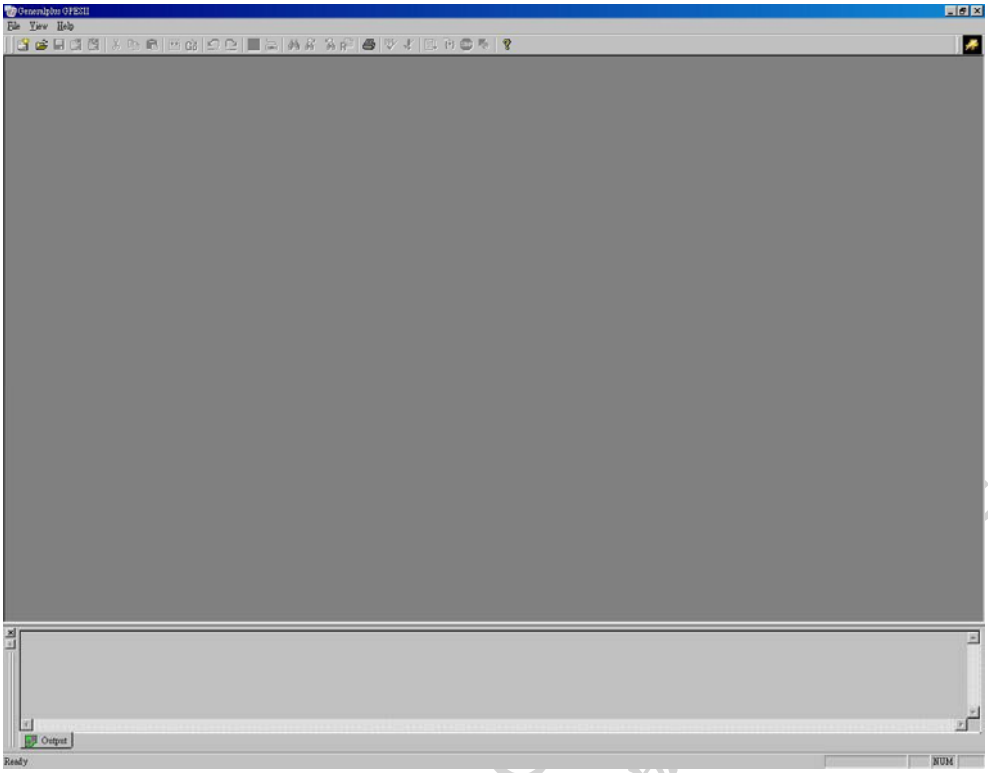
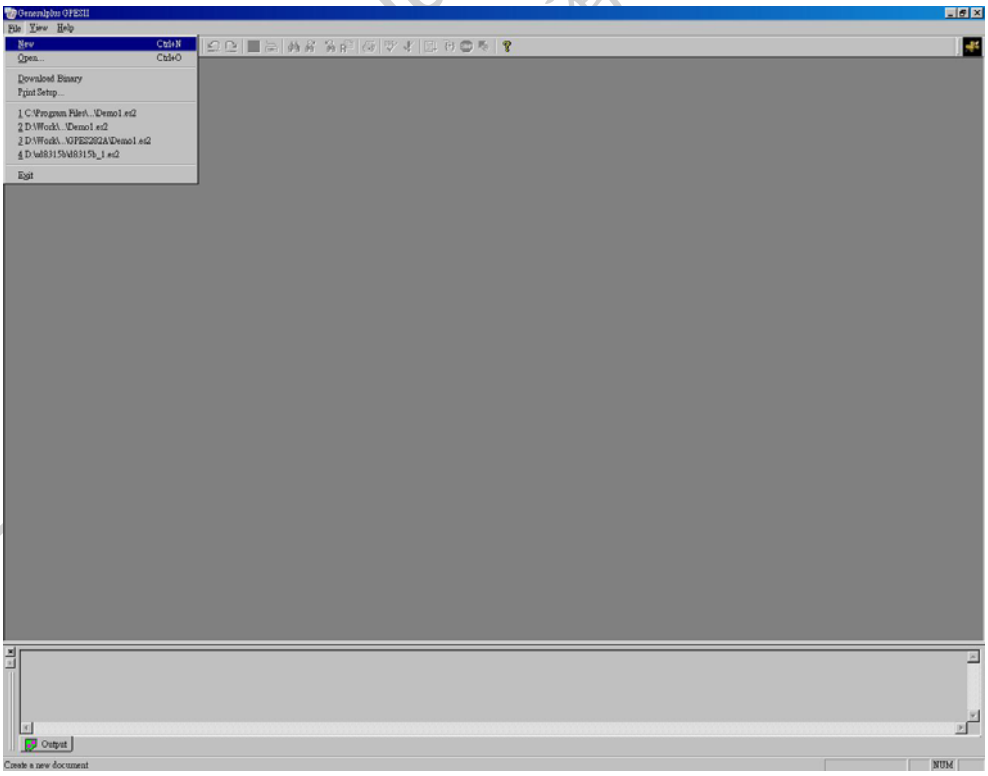
- Run GPES II IDE on your PC.

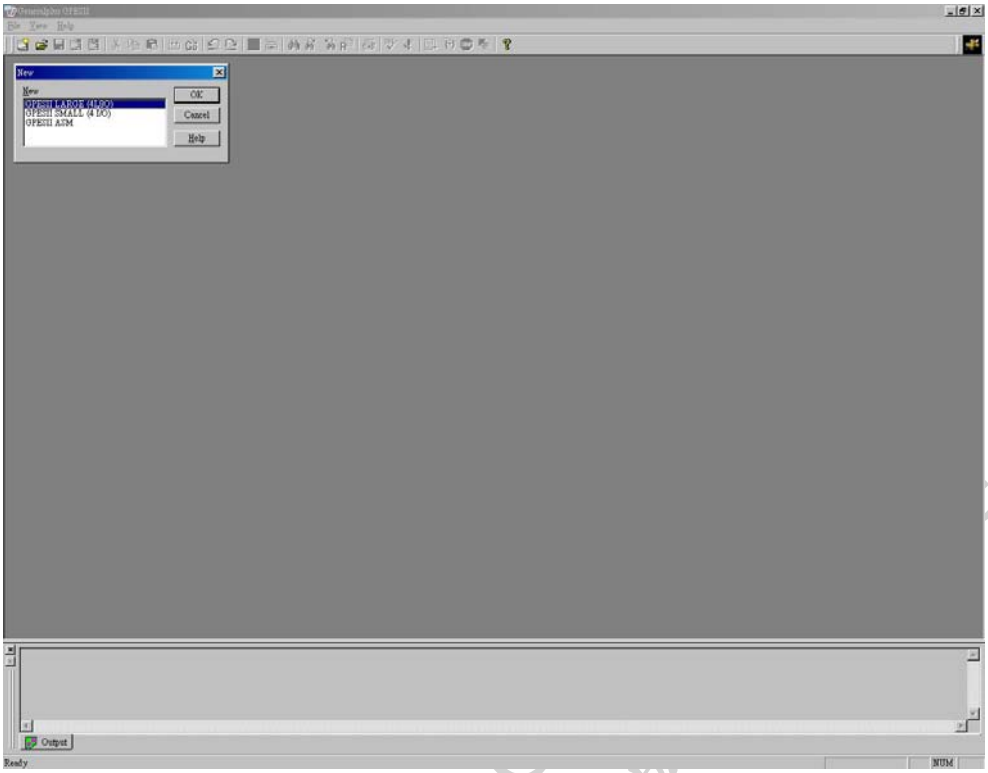


- Click [Menu Bar\File\New]

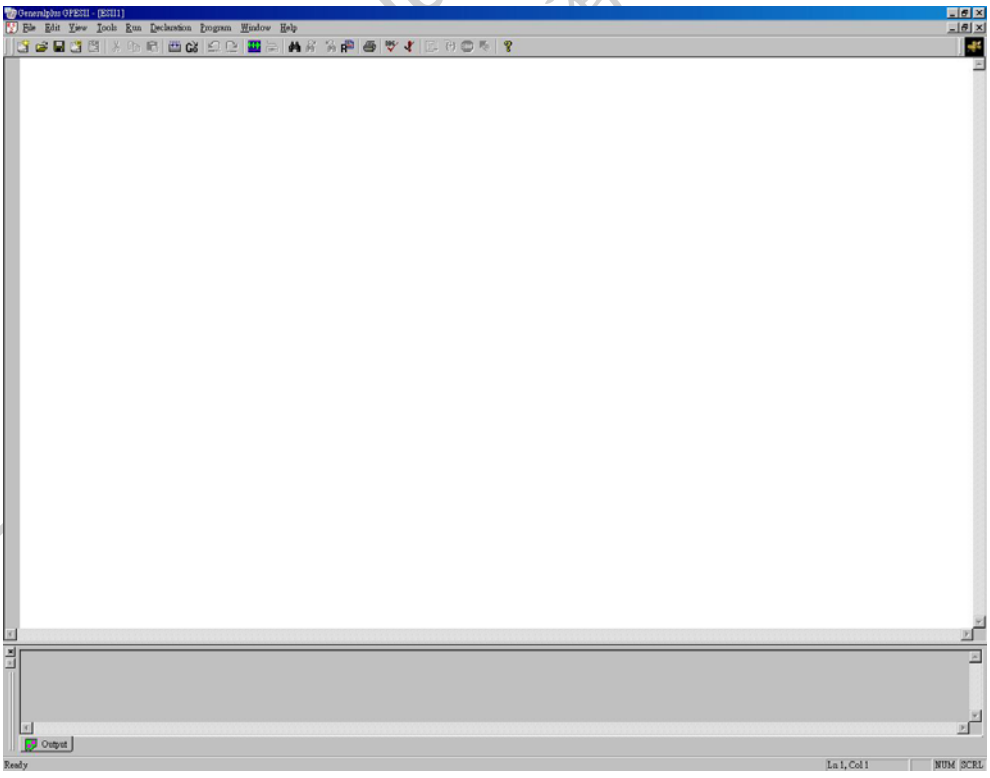


Only

- Select Large series (4I/8O) or Small series(4I/O)



- After click Finish, GPES II IDE will create a new project.



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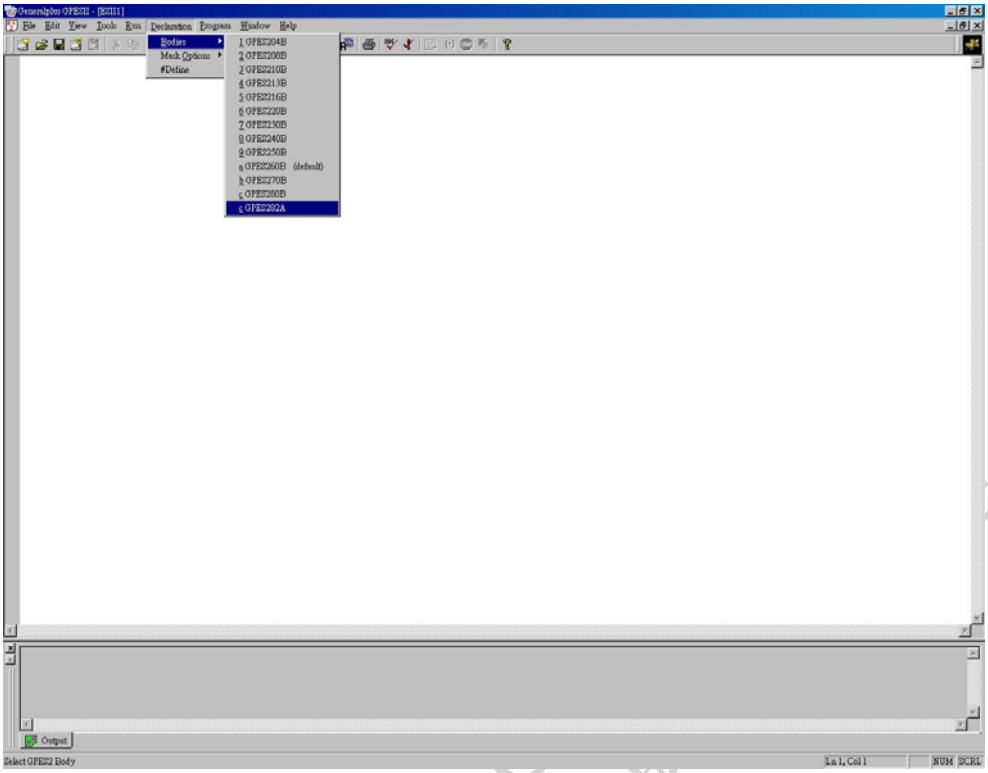
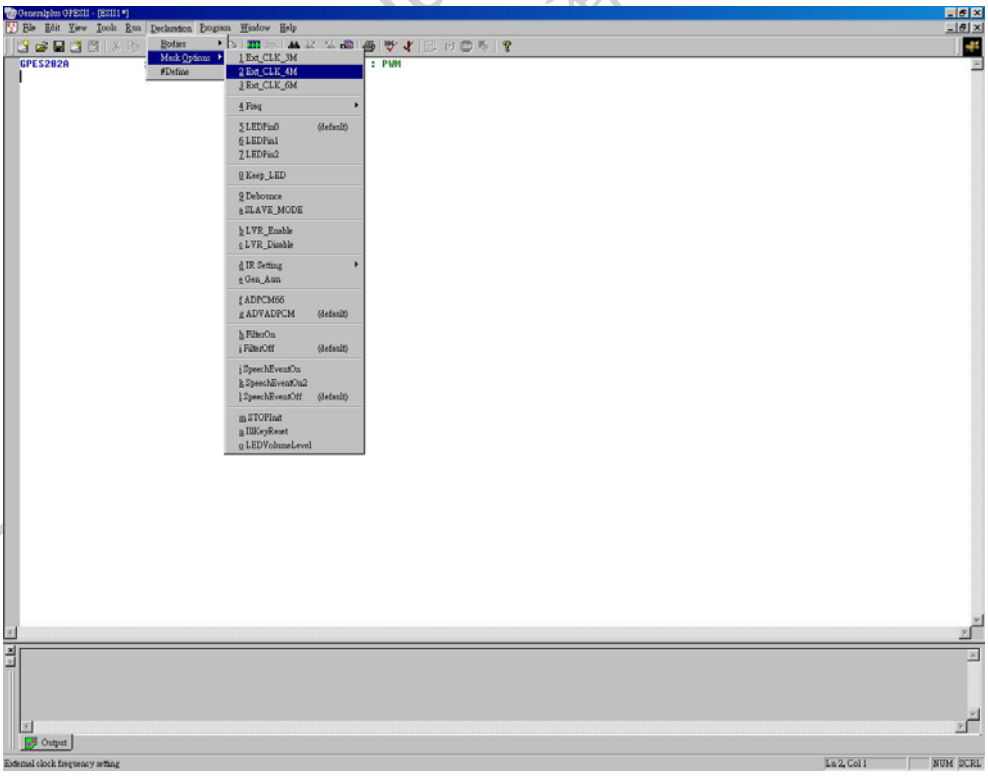
- Select IC from [Menu Bar\Declaration\Bodies]



- Select IC working frequency from [Menu Bar\Mask Options]



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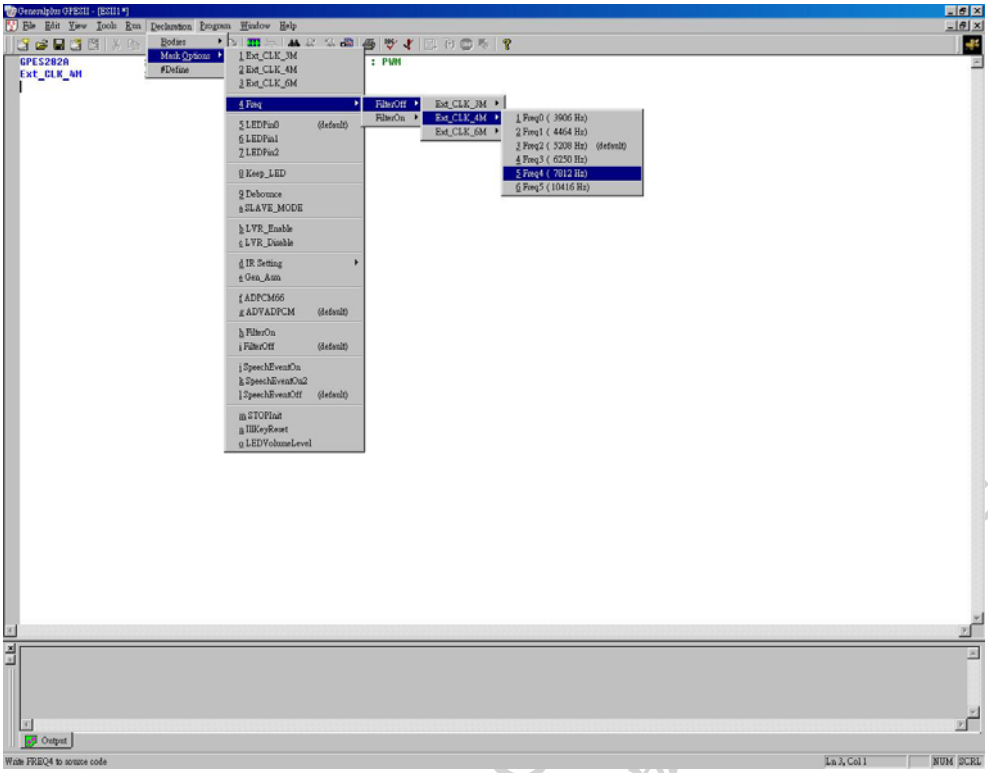
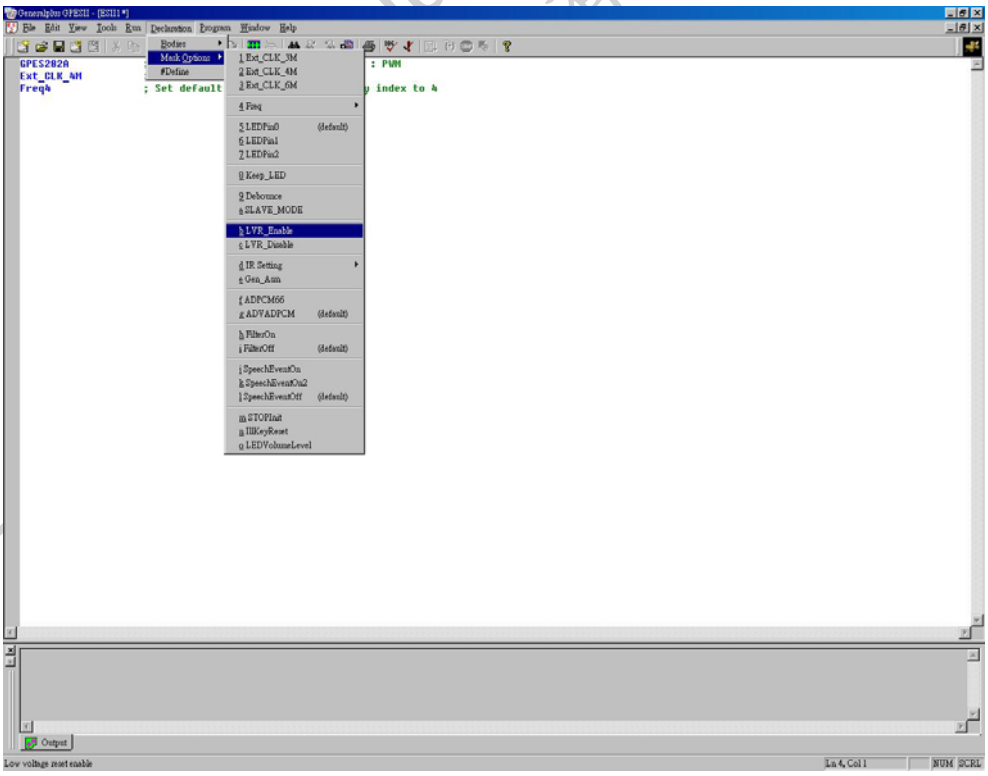
➢ Base on the working frequency, select speech sample rate from [Menu Bar\Mask Options\Freq].



➢ Select LVR Enable or Disable from [Menu Bar\Mask Options].



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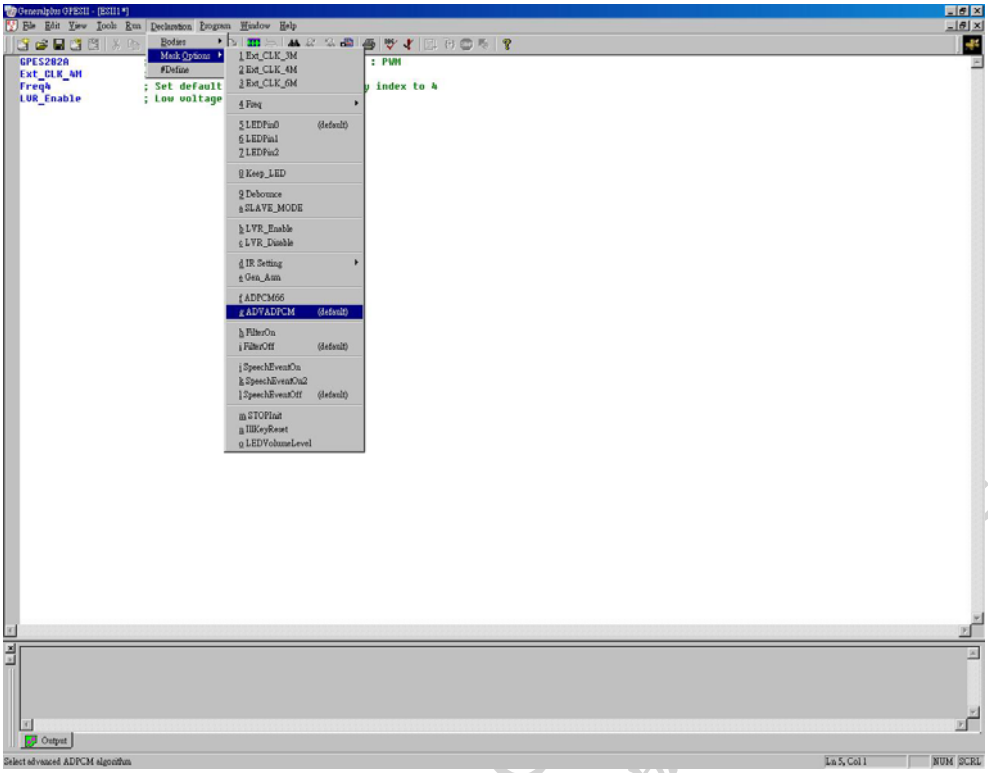
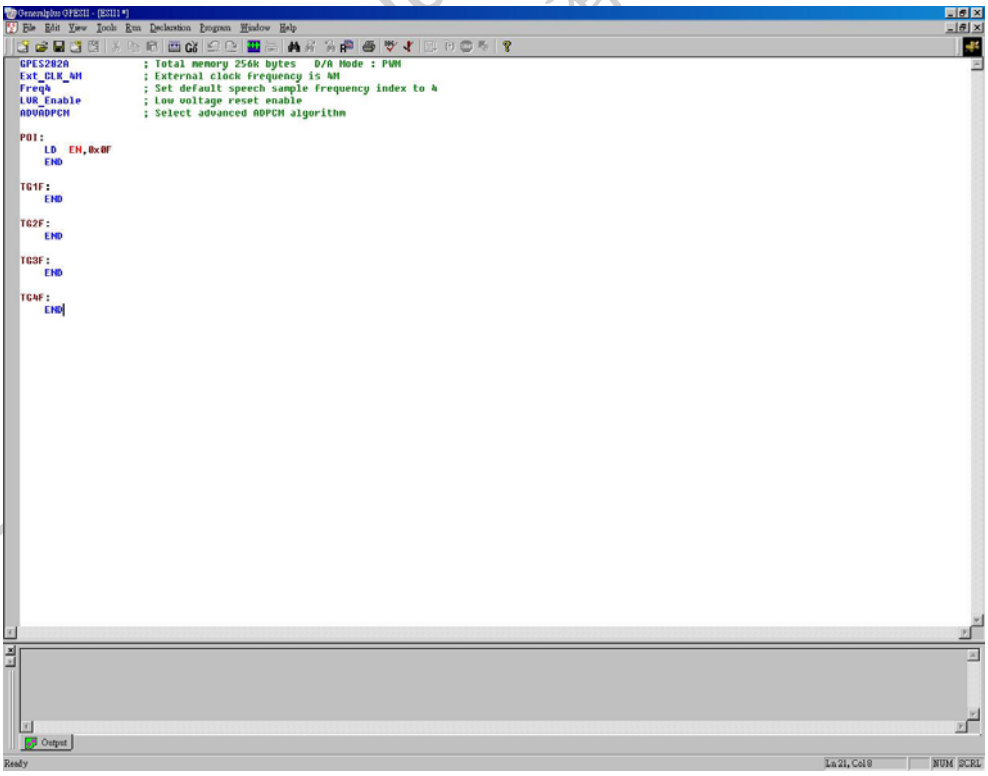
- Select speech algorithm from [Menu Bar\Mask Options].



- Start editing program.

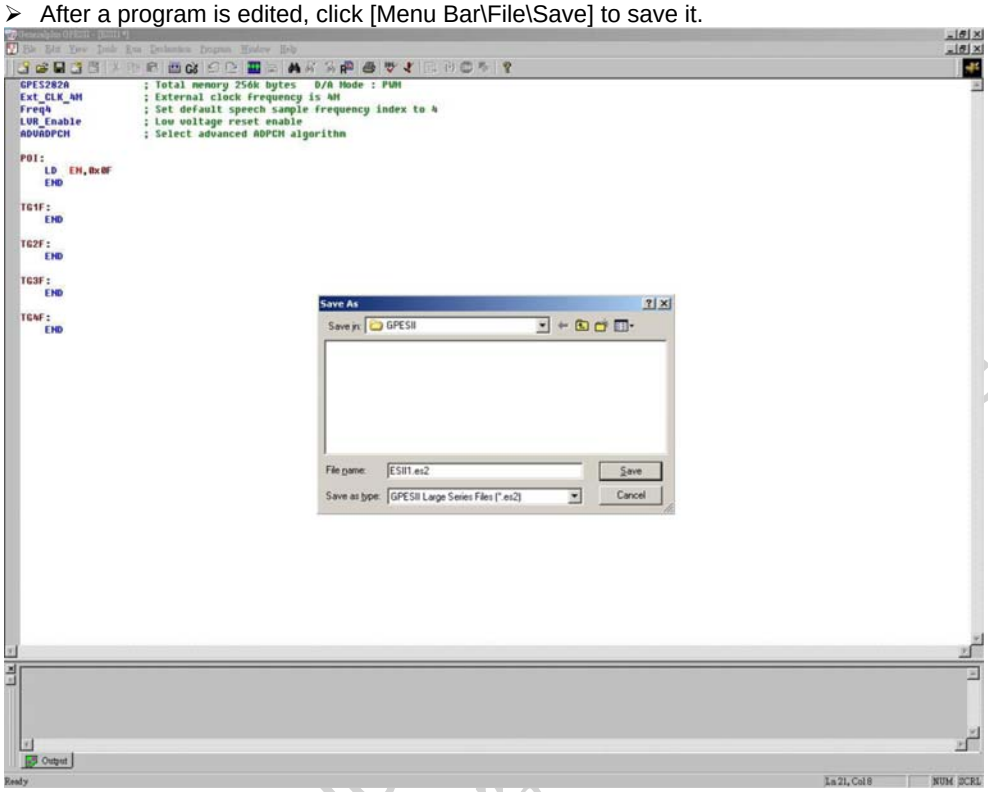


Note: "POI" is an entrance point in a program after power on. This label must be existed.

3.2 Compile, Download and Debug the Program

After a new project is created, users can learn the following topics: compile, download and debug a program.

- After a program is edited, click [Menu Bar\File\Save] to save it.



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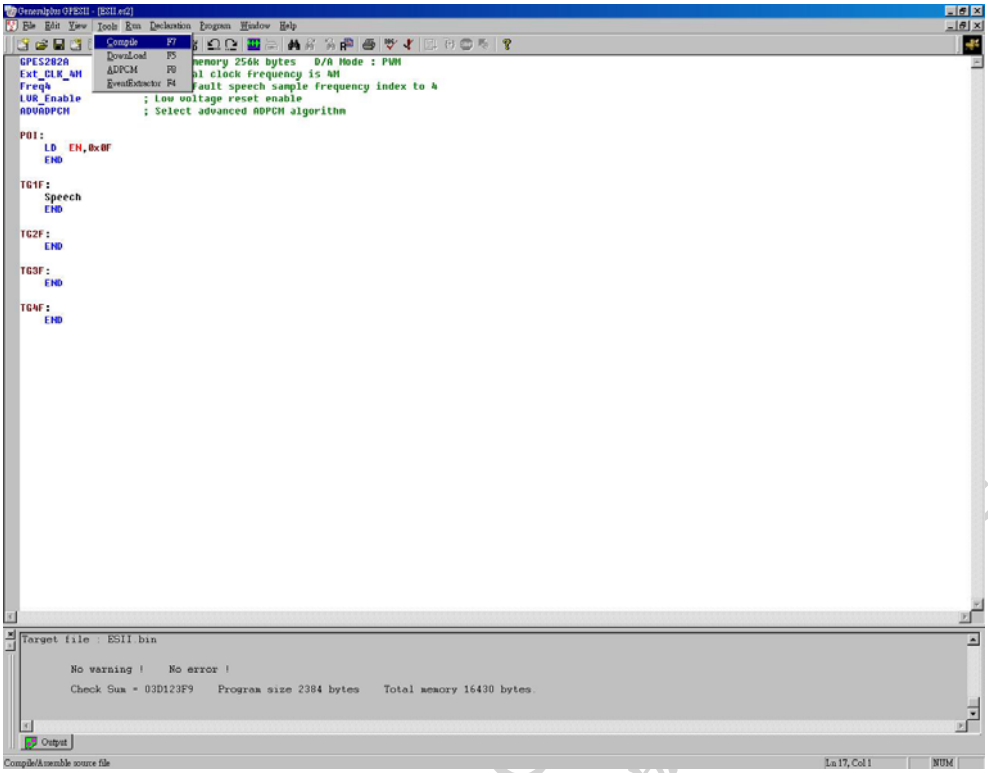
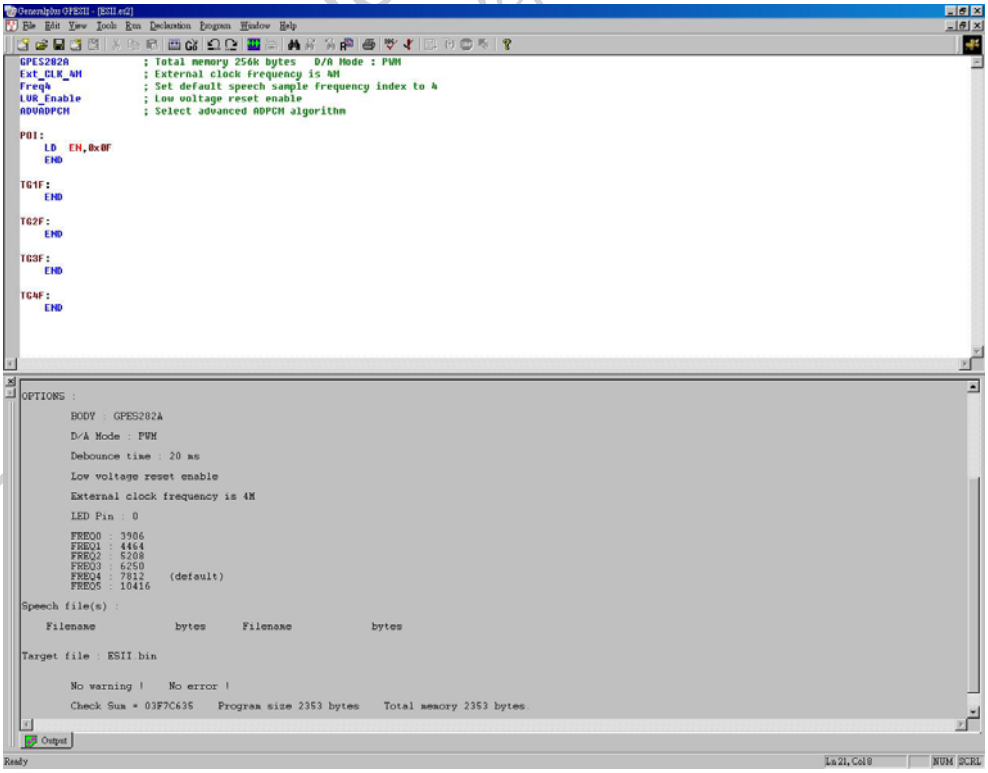
➢ After saving a program, compile the whole project via clicking [Menu Bar\Tools\Compile].



➢ After compile is completed, the window below program area shows the information for the entire project.



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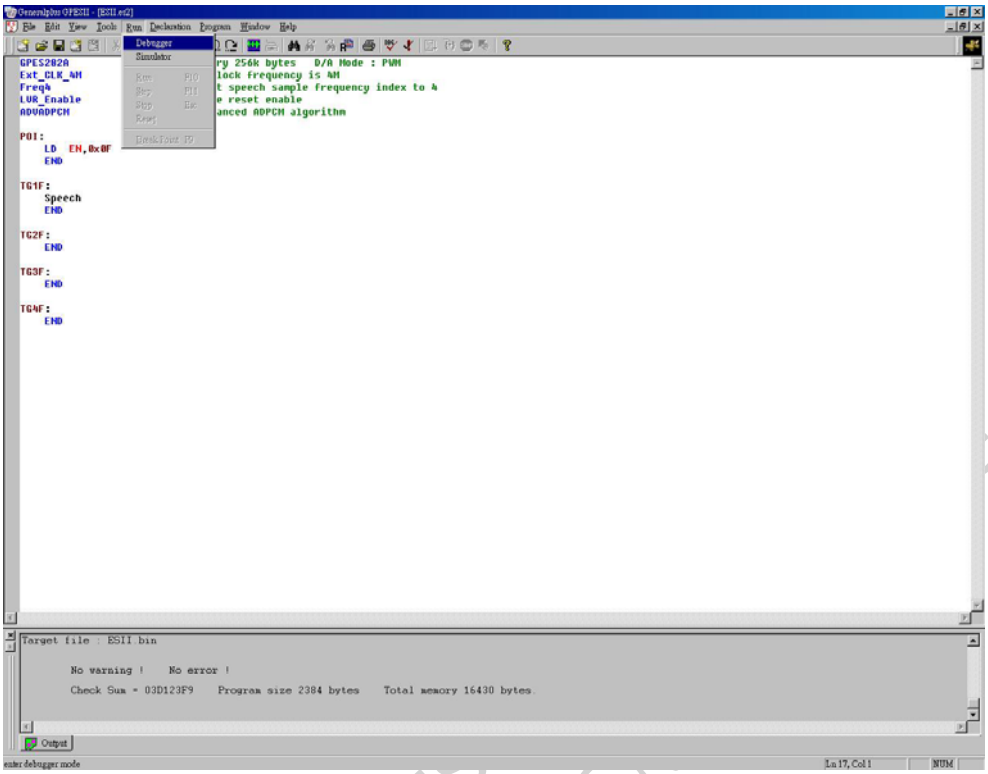
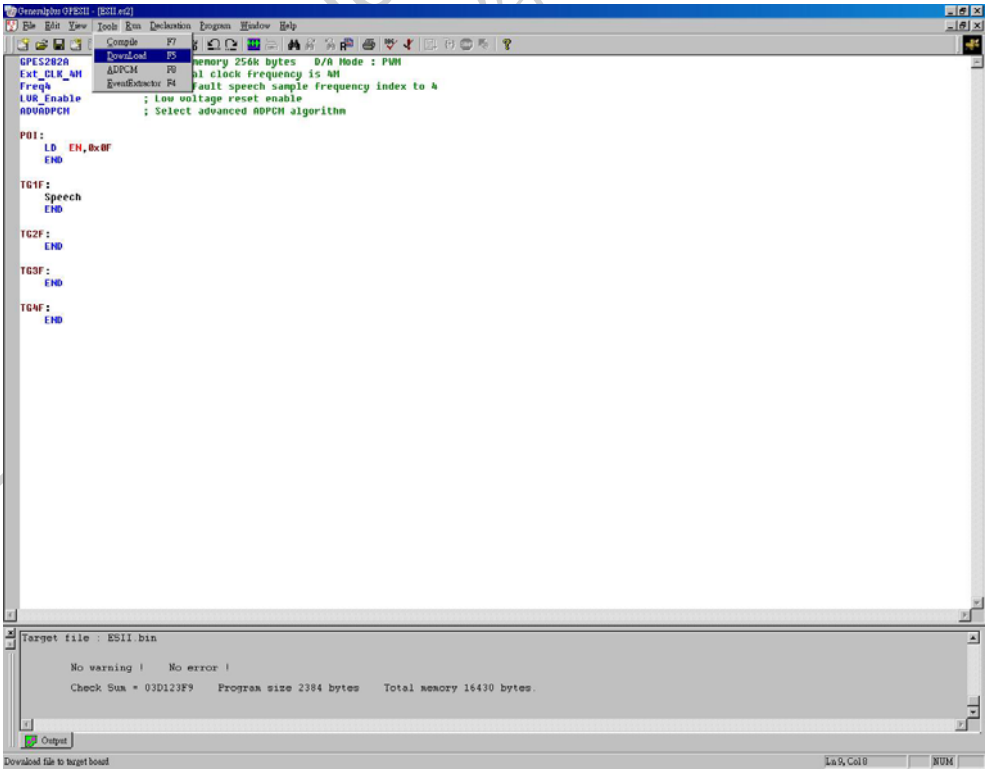
➢ Enter debug mode via clicking [Menu Bar\Run\Debug].


Debugger
Simulator
Target file : ESII.bin
No warning ! No error !
Check Sum = 03D123F9 Program size 2384 bytes Total memory 16430 bytes.
Output

➢ Download program onto EMU board via clicking [Menu Bar\Tools\Download].



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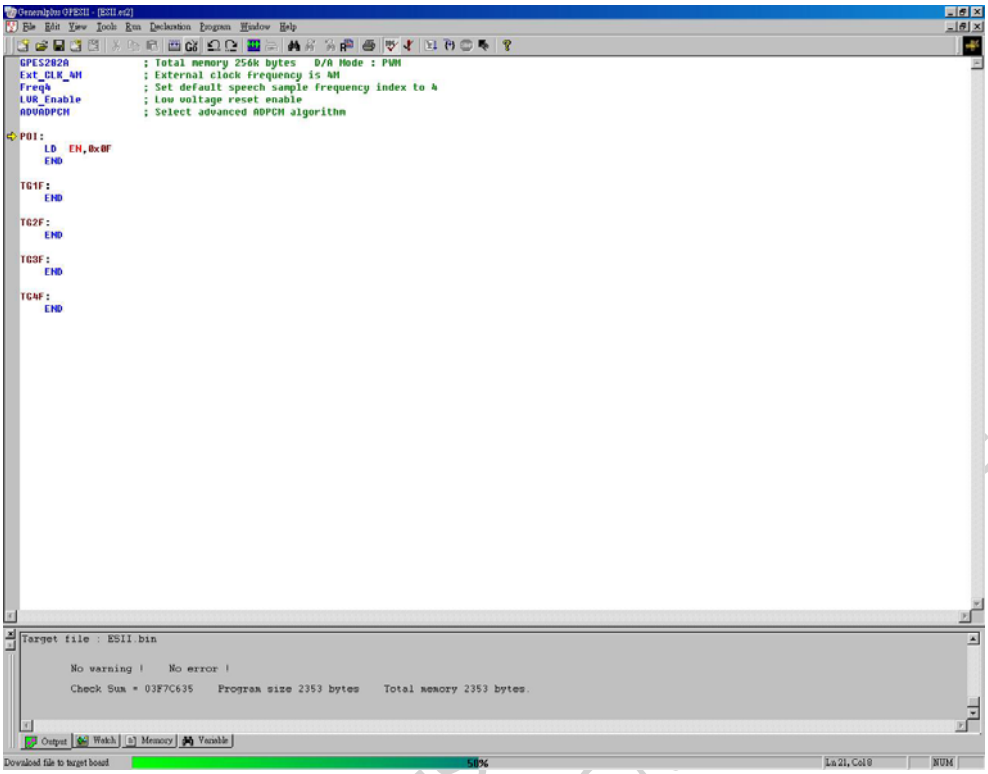
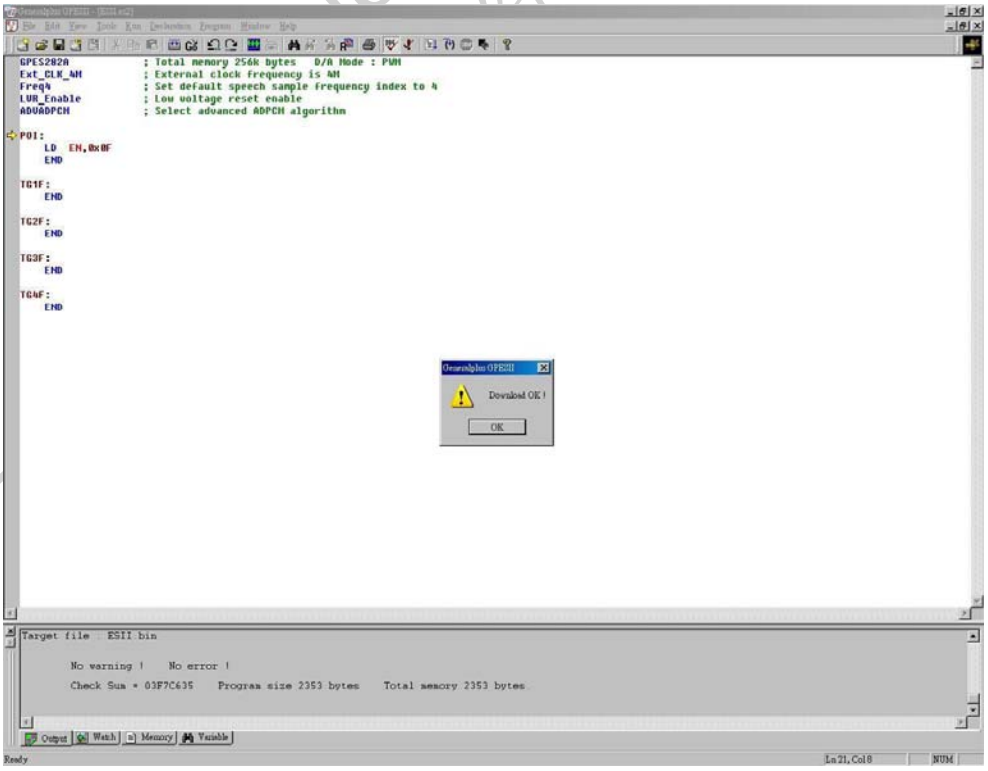
- A status bar shows while downloading program.



- A confirm messages shows if download is complete and successful.



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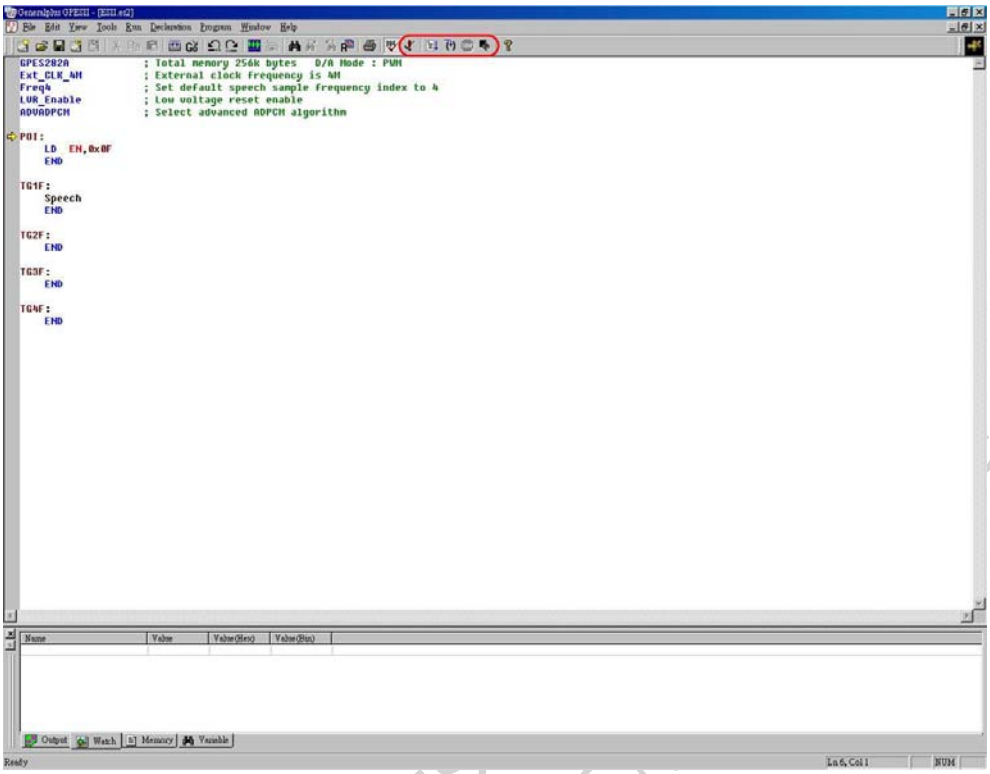
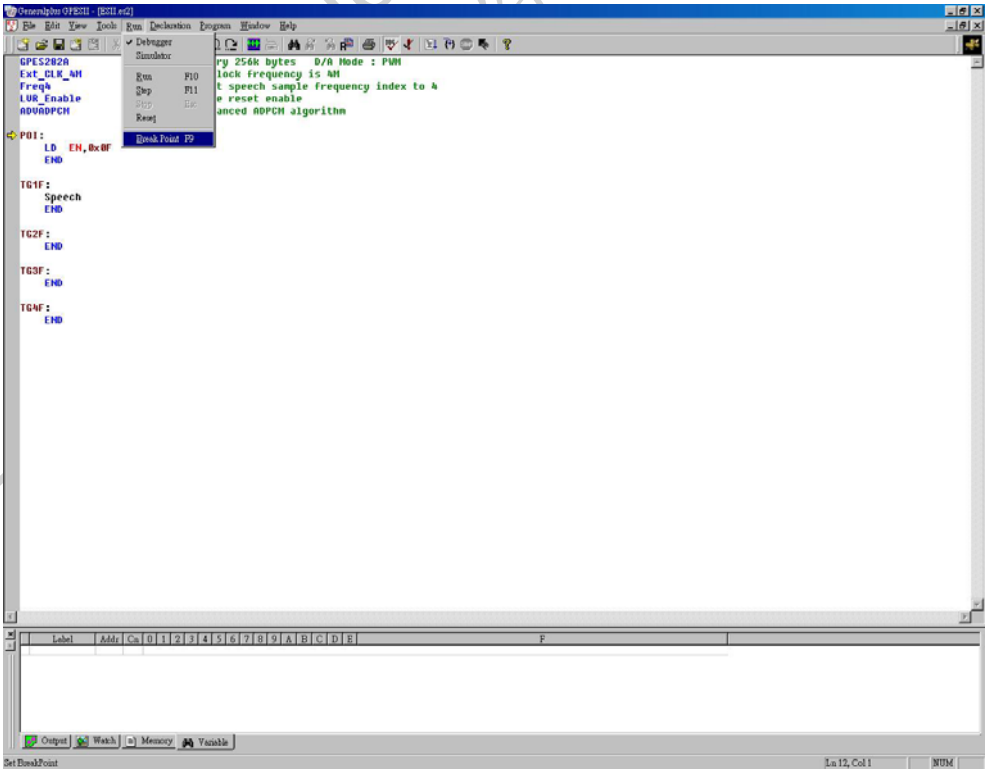
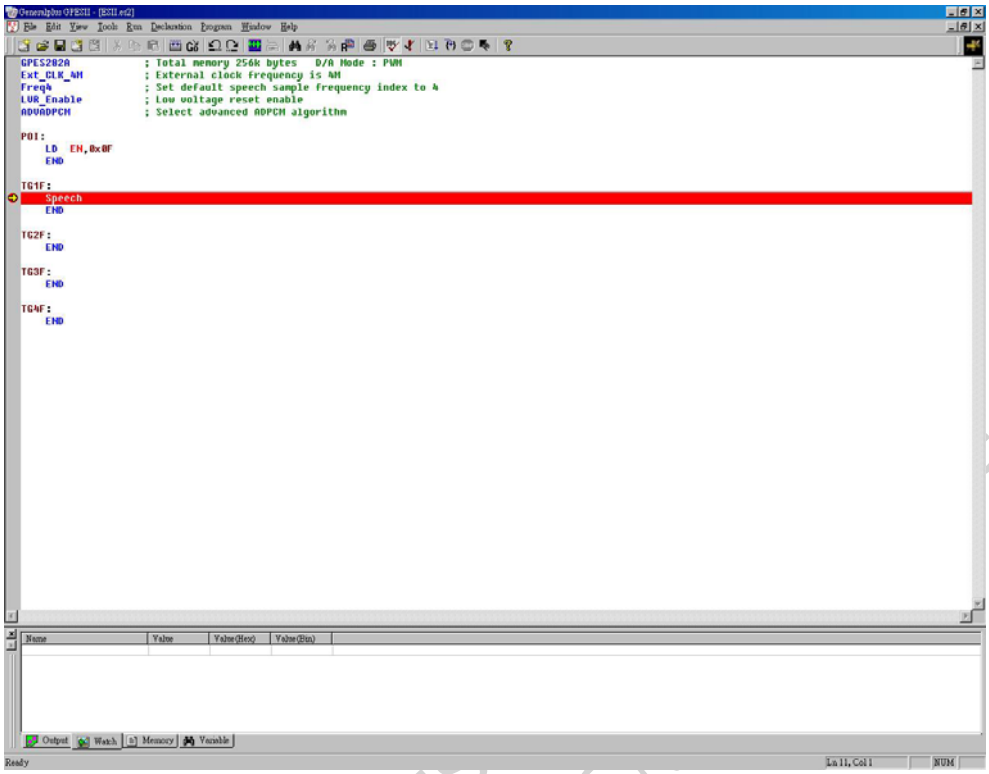
- Click the buttons on the Tool Bar to run or debug a program. See the box in red.



- Click [Menu Bar\Run\Break Point] to set a break point for debug.



- Program will stop at the break point while running.



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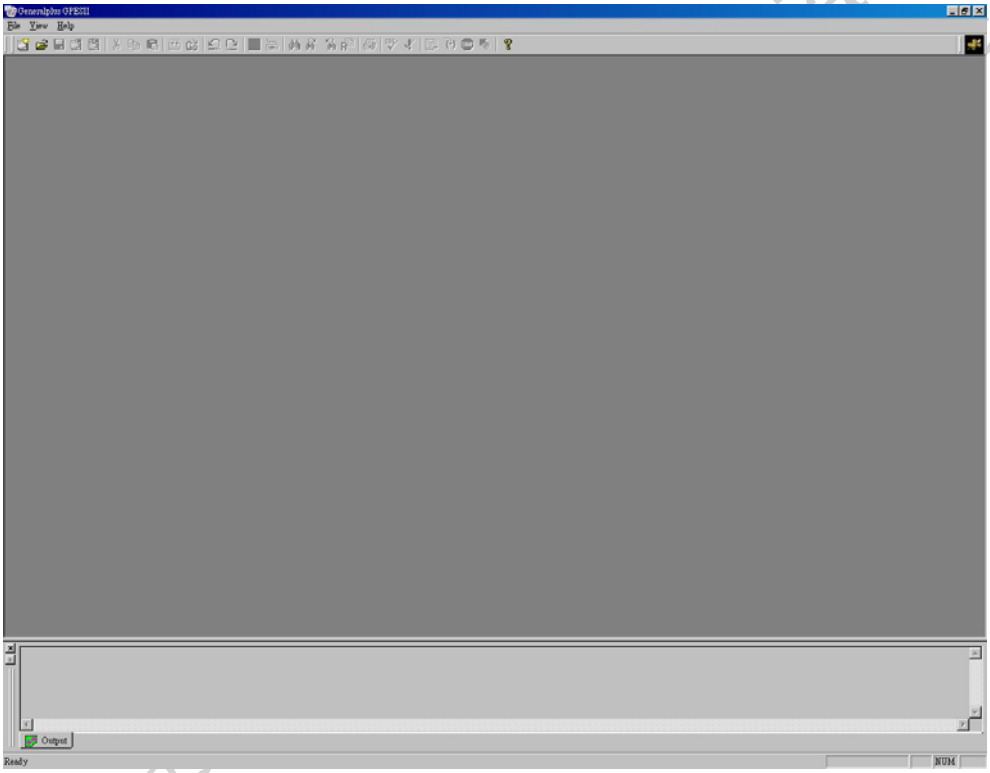
3.3 Open the GPES2 Demo Code

After GPES II IDE is installed, some demo codes will be also installed in a folder. Users can learn how to write a program by referring these demo codes. Please follow the sequence below to open GPES2 Demo Code. The directory is as follows:

【C:\Program Files\Generalplus\GPESII_V5.0.1\Example】

Note: "GPESII_V5.0.1" is the version installed here; version may be varied.

- Run GPES II IDE



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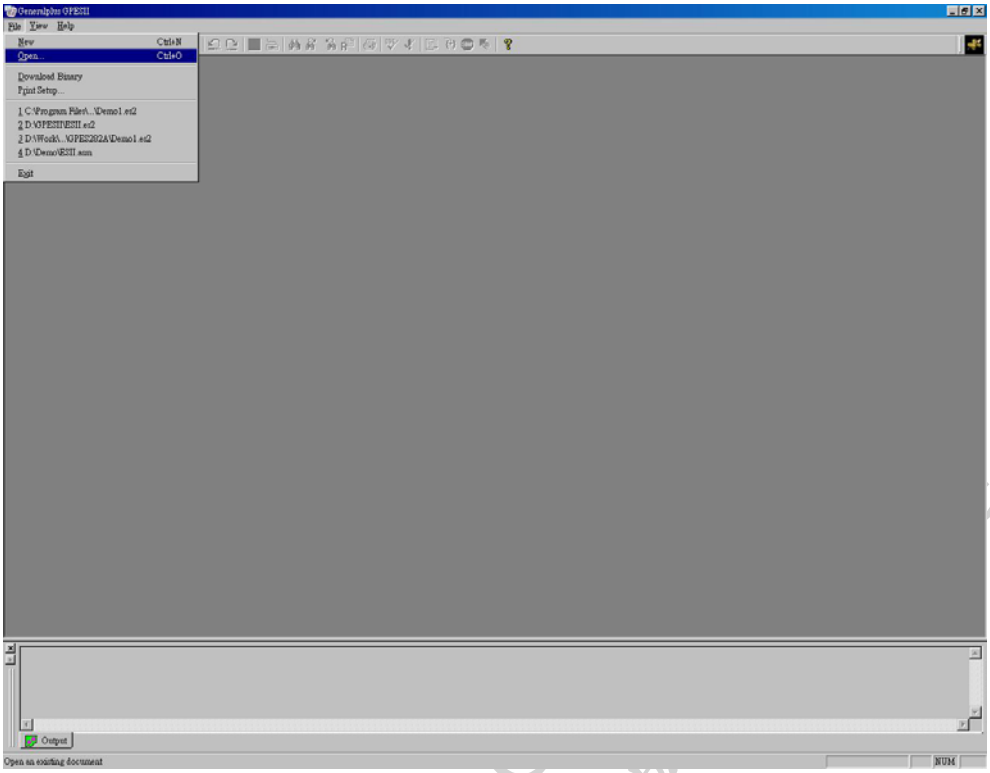
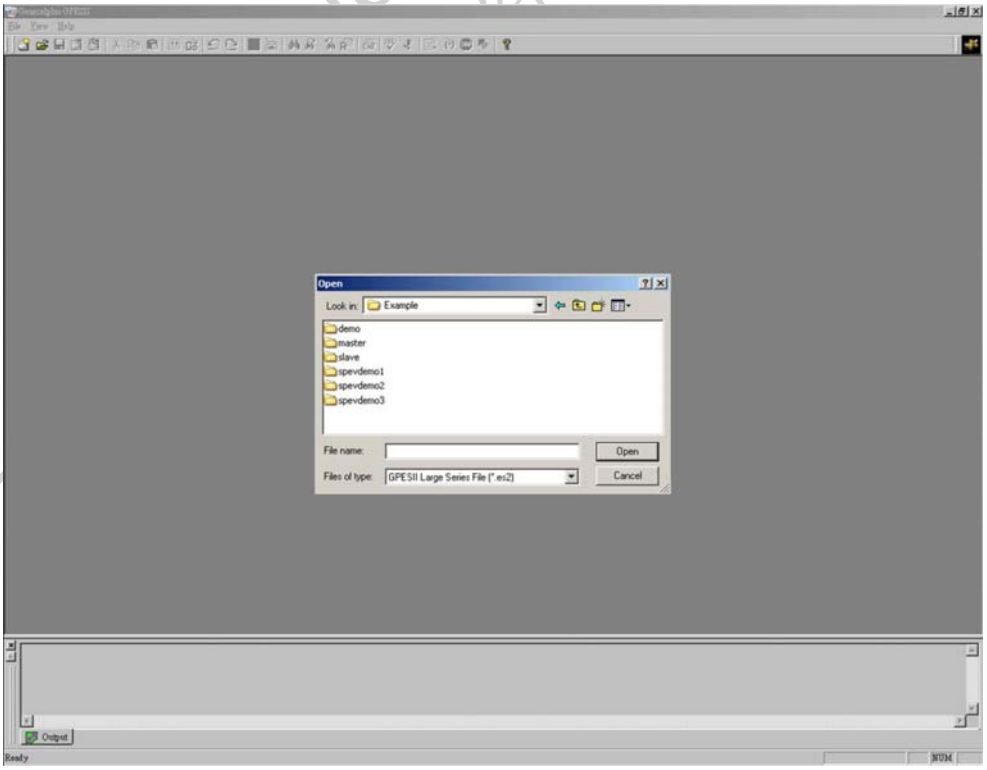
- Open a project by [Menu Bar\File\Open].



- Open Demo Code Project from directory as follow:

【C:\Program Files\Generalplus\GPESII_V5.0.1\Example】



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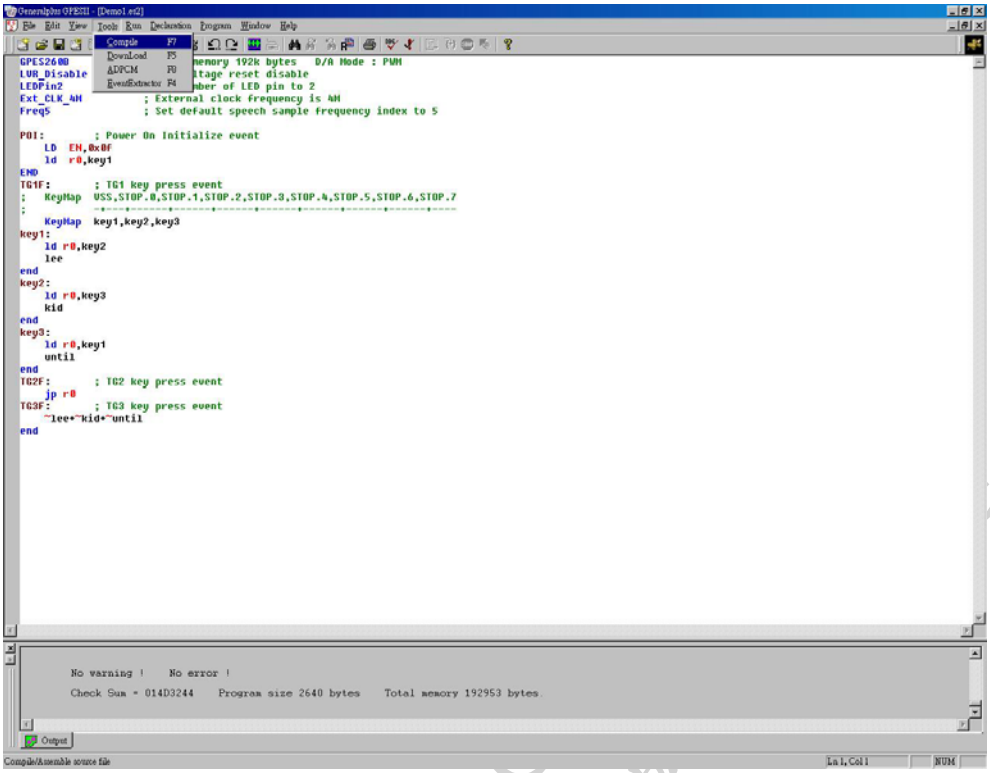
- Click [Menu Bar\Tools\Compile] to re-compile whole project.



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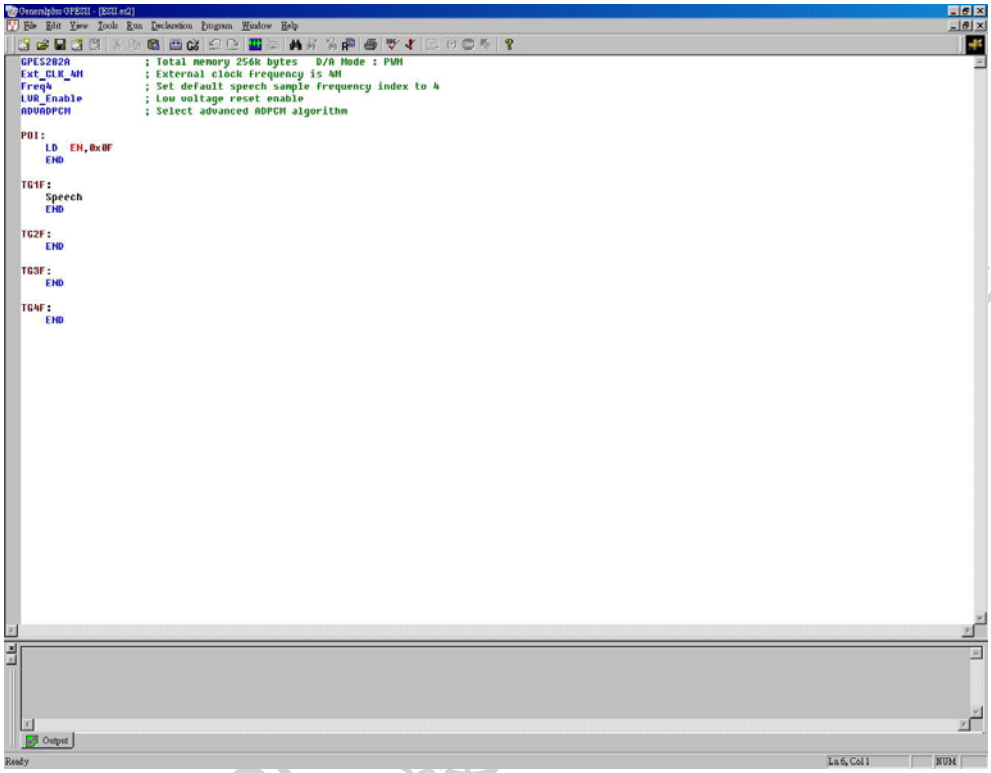
3.4 Compress Speech Files for GPES2 Series

The following flow shows how to convert a original speech into GPES2 playable format.

- Run the GPES II IDE and open a GPES2 demo code on it



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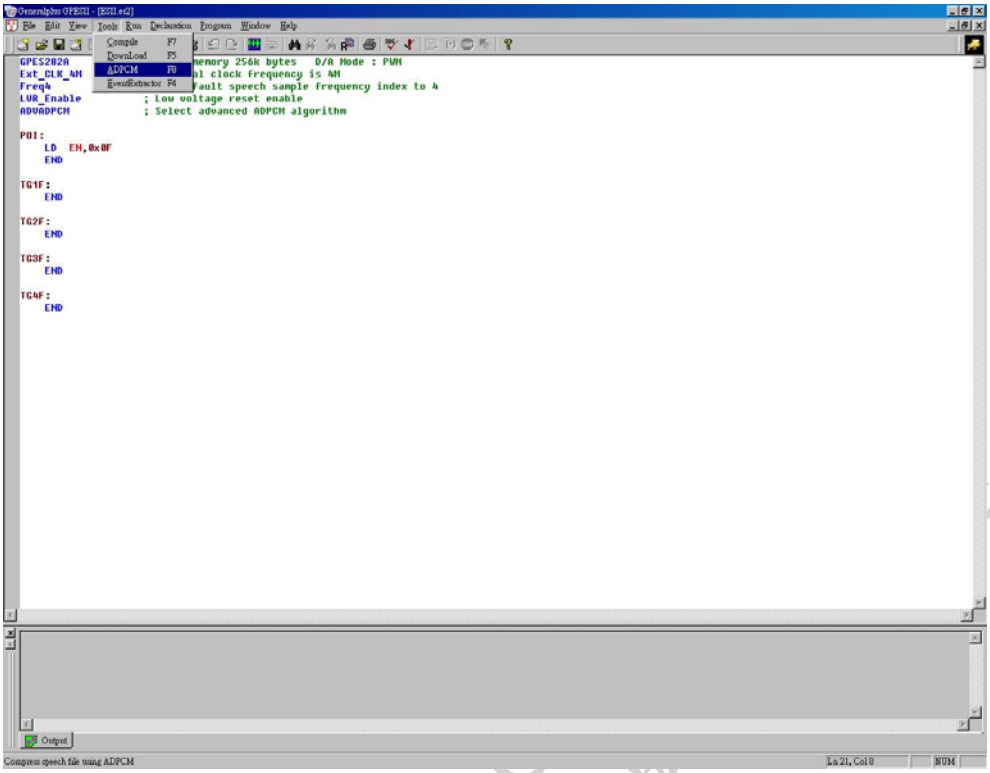
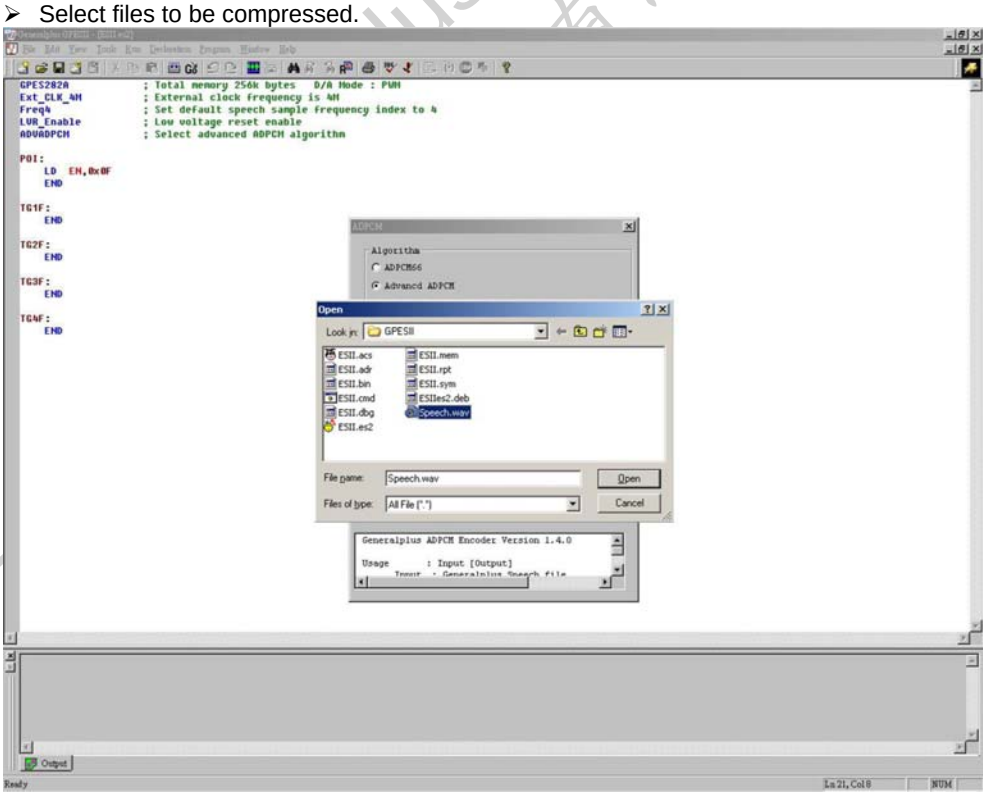
➢ Click [Menu Bar\Tools\ADPCM] to run the compression tool.



➢ Select files to be compressed.



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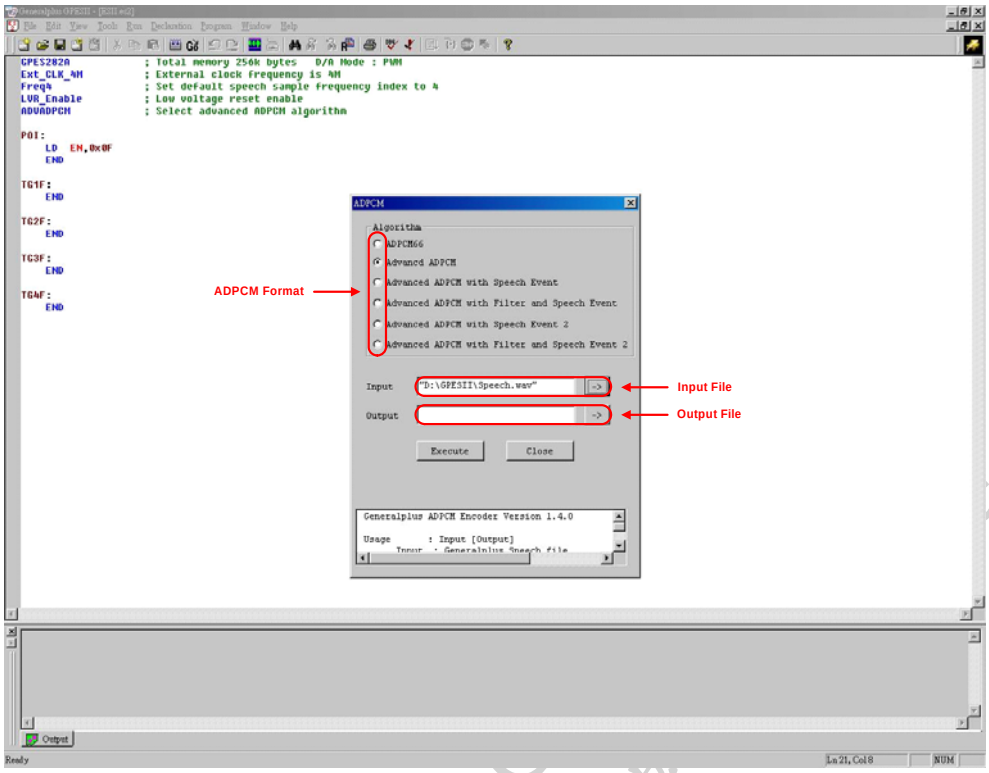
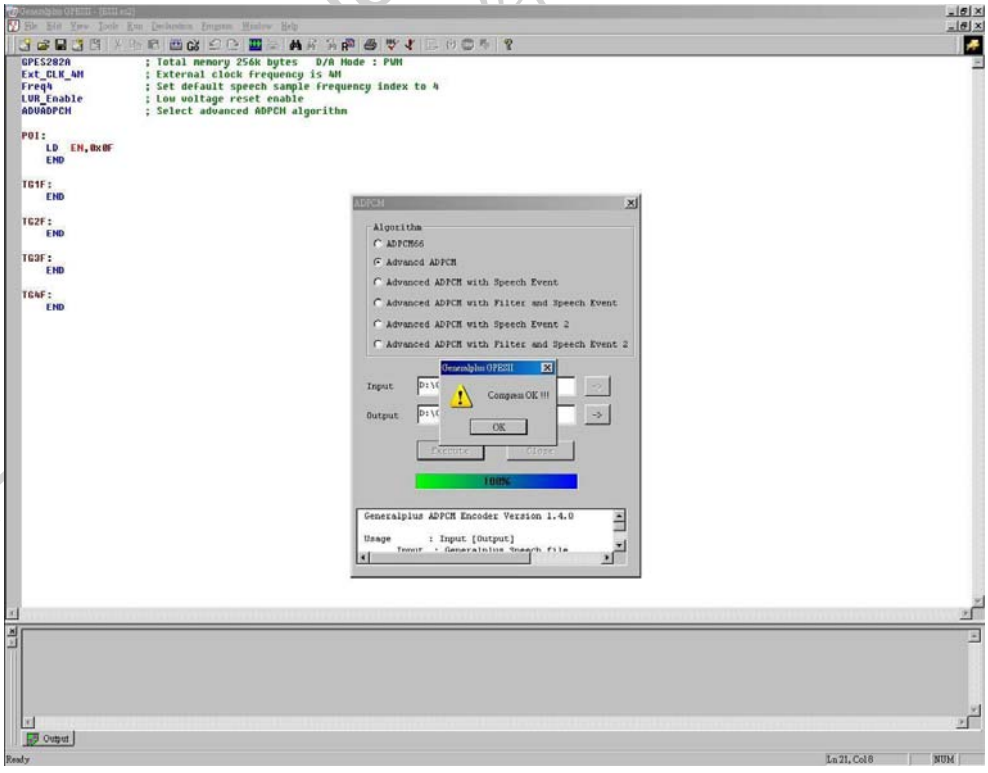
➢ Select compressed format and stored locations. Click the “Execute” to compress files.



➢ Speech files will be compressed into designated formats after click “Execute”. And GPES2 is able to play speeches.

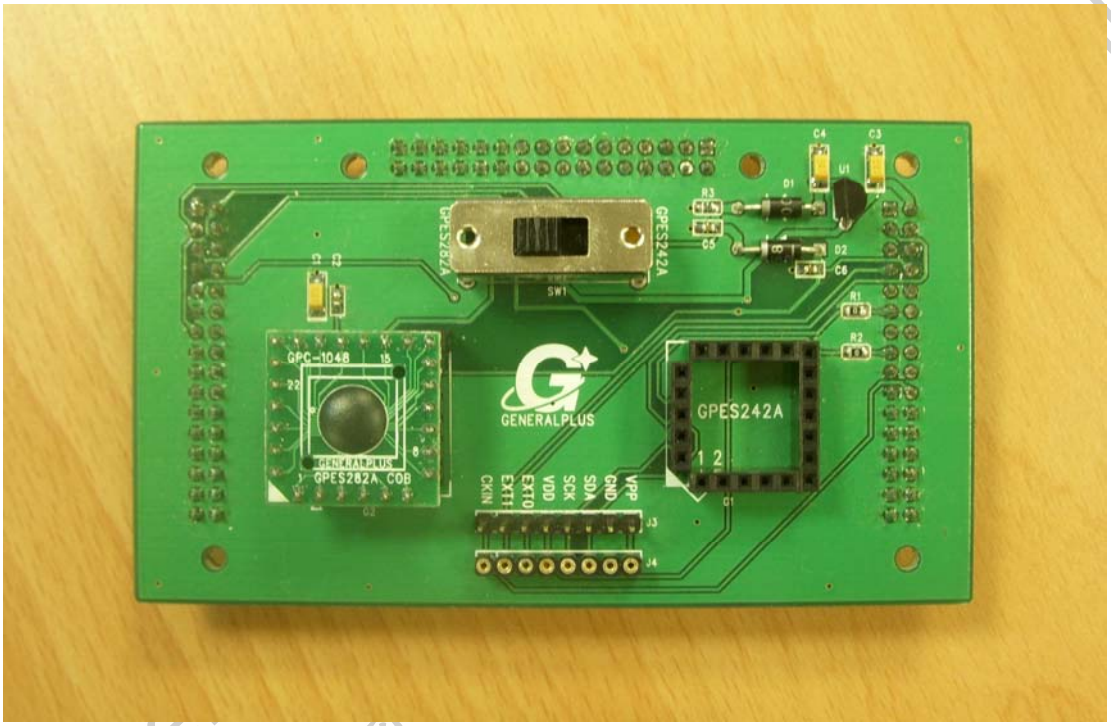


4 HOW TO USE THE G+ ALL WRITER

4.1 Write the Program into OTP Step by Step

The following sections describe how to program an OTP using G+ ALL WRITER

- According to the orientation below, insert the GPES242A/GPES282A OTP COB on Daughter Board and insert the Daughter Board onto ALL WRITER.



Note: Based on the programmed IC types, select GPES242A or GPES282A via SW1,

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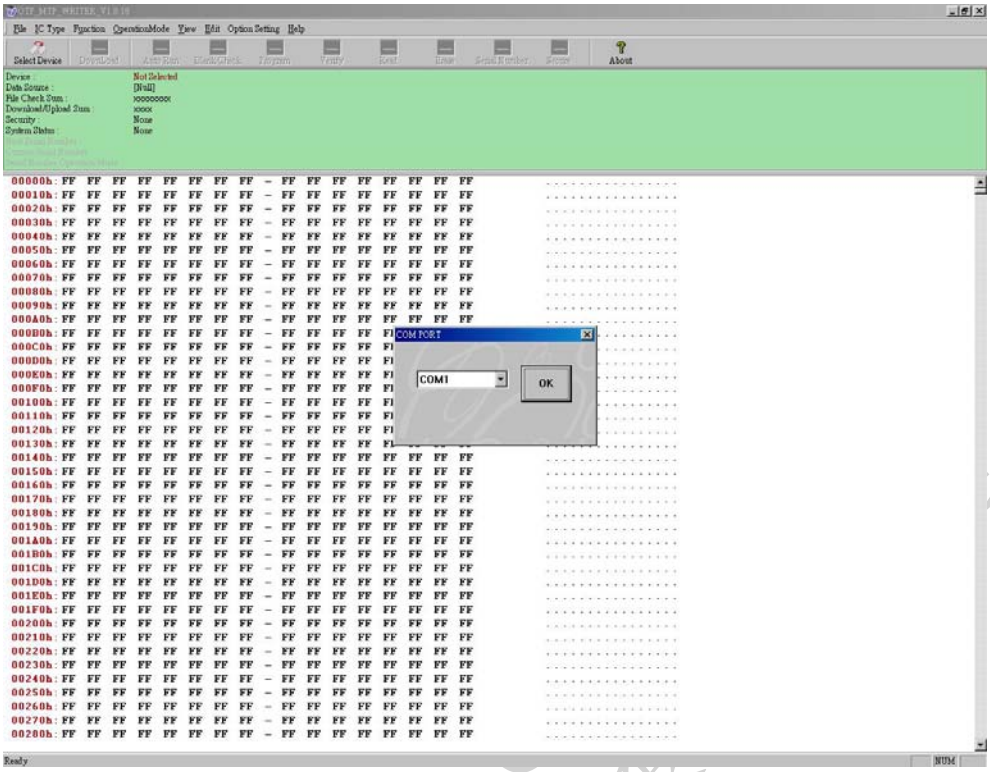
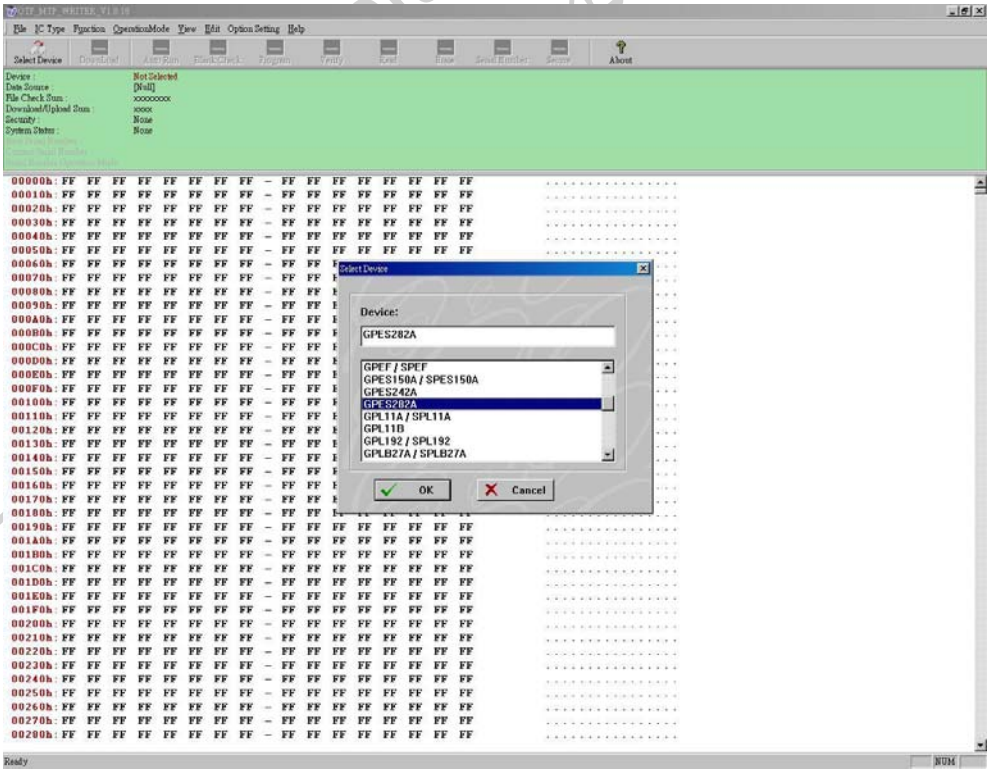
- Run G+ OTP_MTP_WRITER and choose COM PORT the PC connects with.



- Click the “Select Device” on the tool bar and select programmed OTP, and press “OK”.



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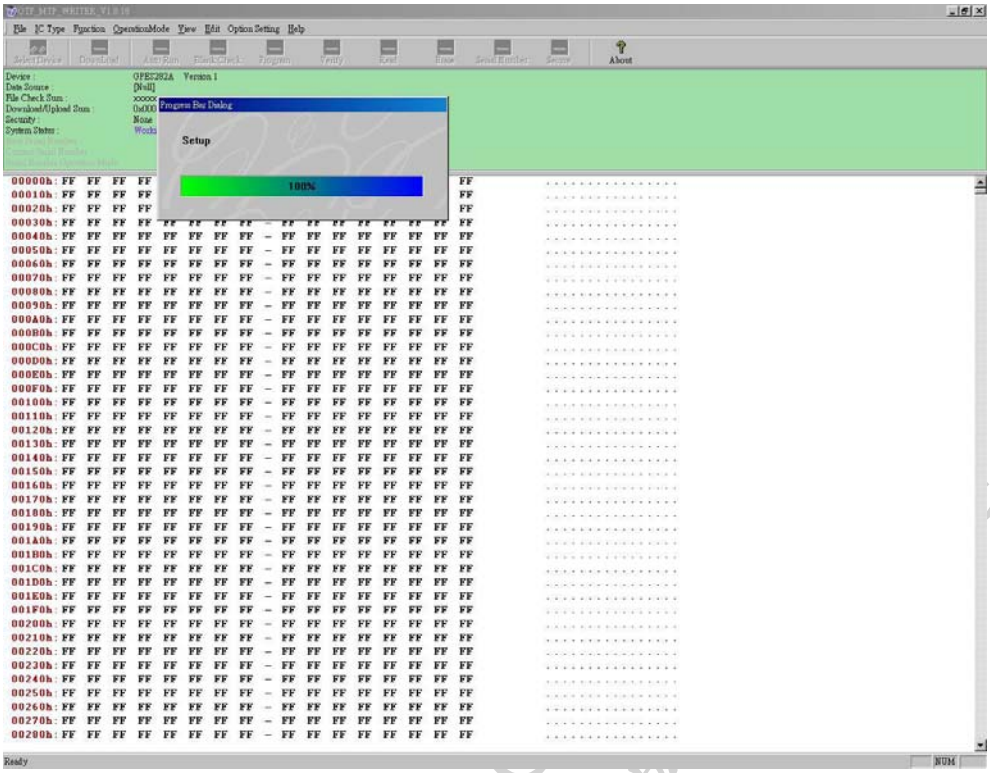
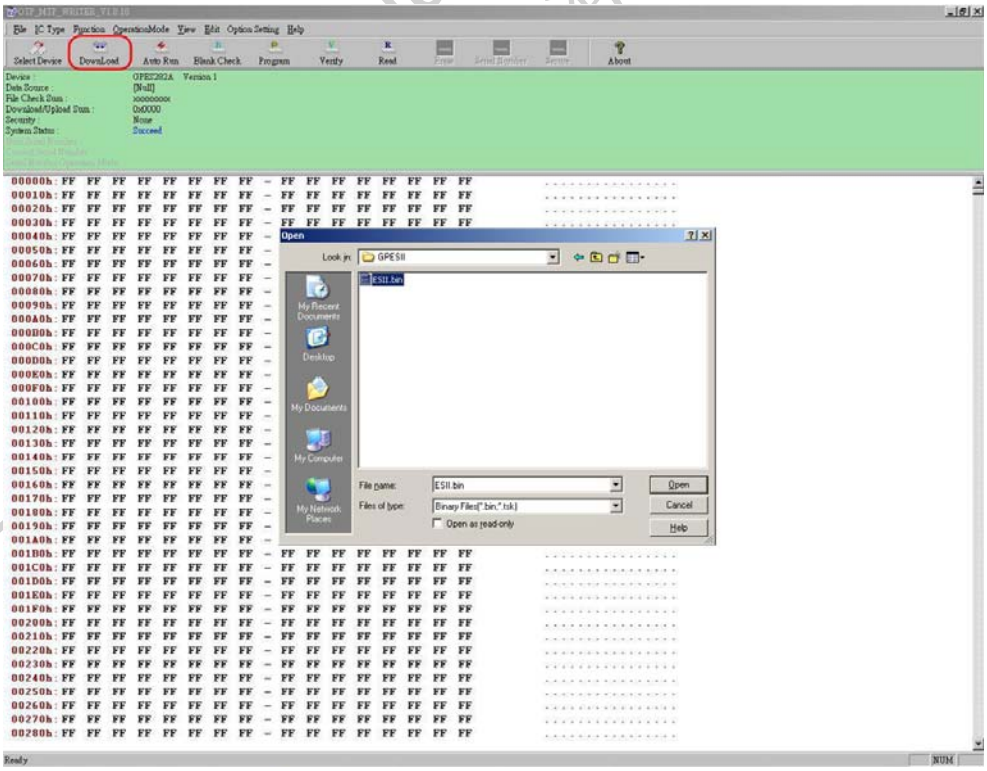
- Configuration will be loaded after device is chosen and a message indicates setup is succeeded.



- Select programmed file by clicking “Download” on the tool bar.



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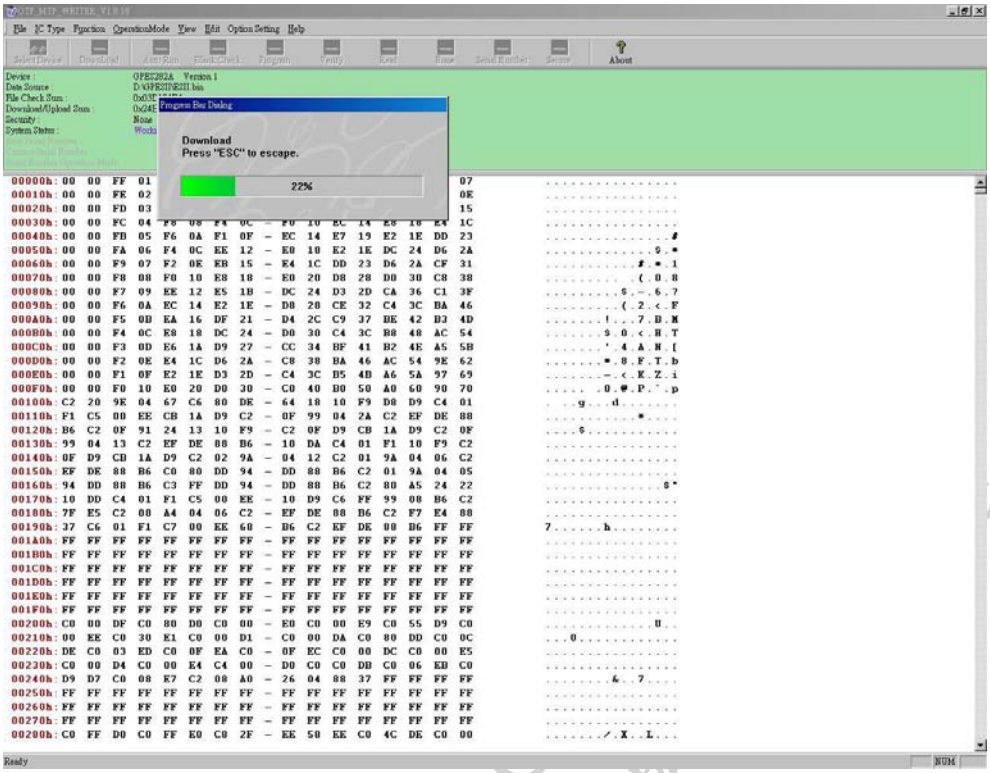
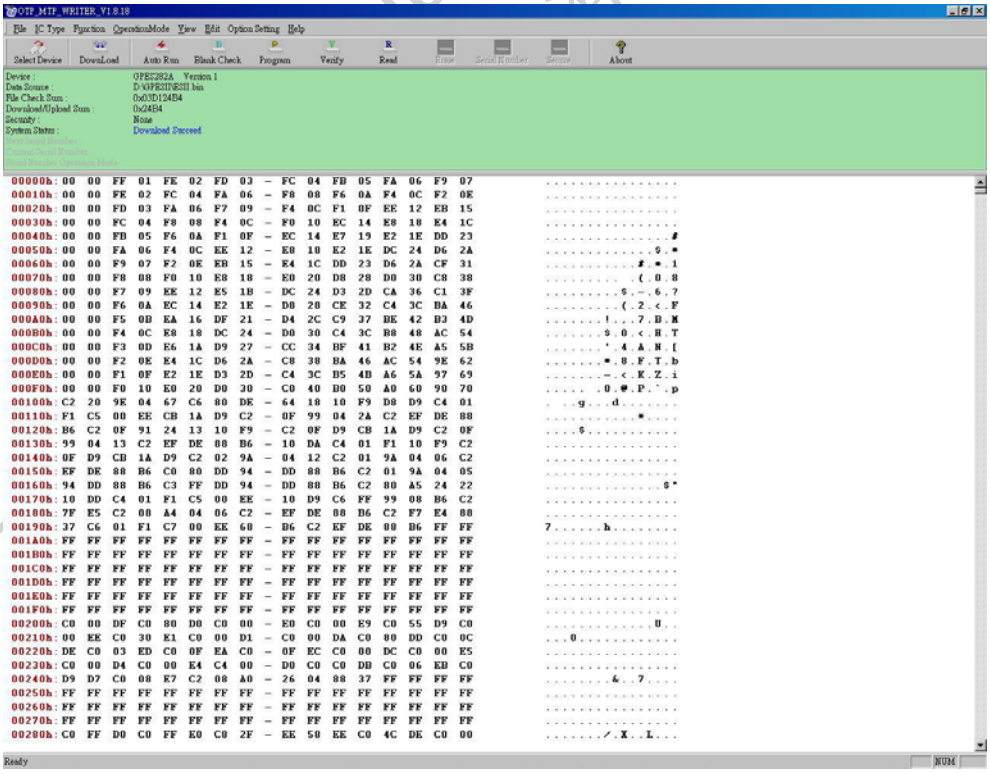
- Progress status shows while downloading.



- Status shows “Download Succeed” and file check sum after download is successfully completed.



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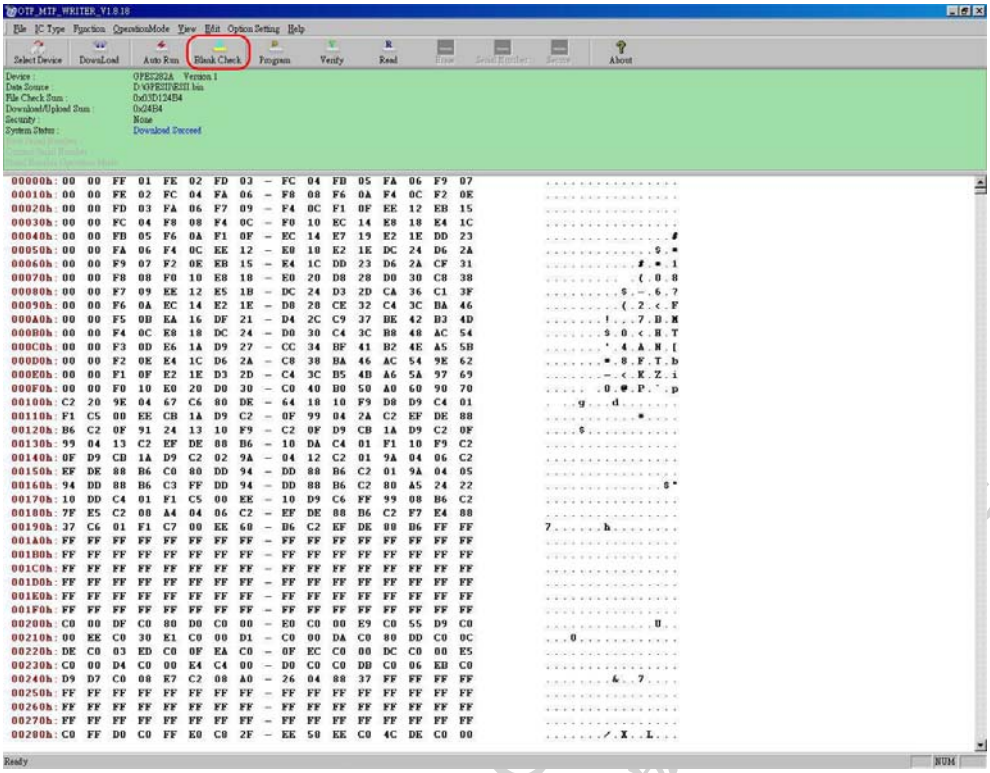
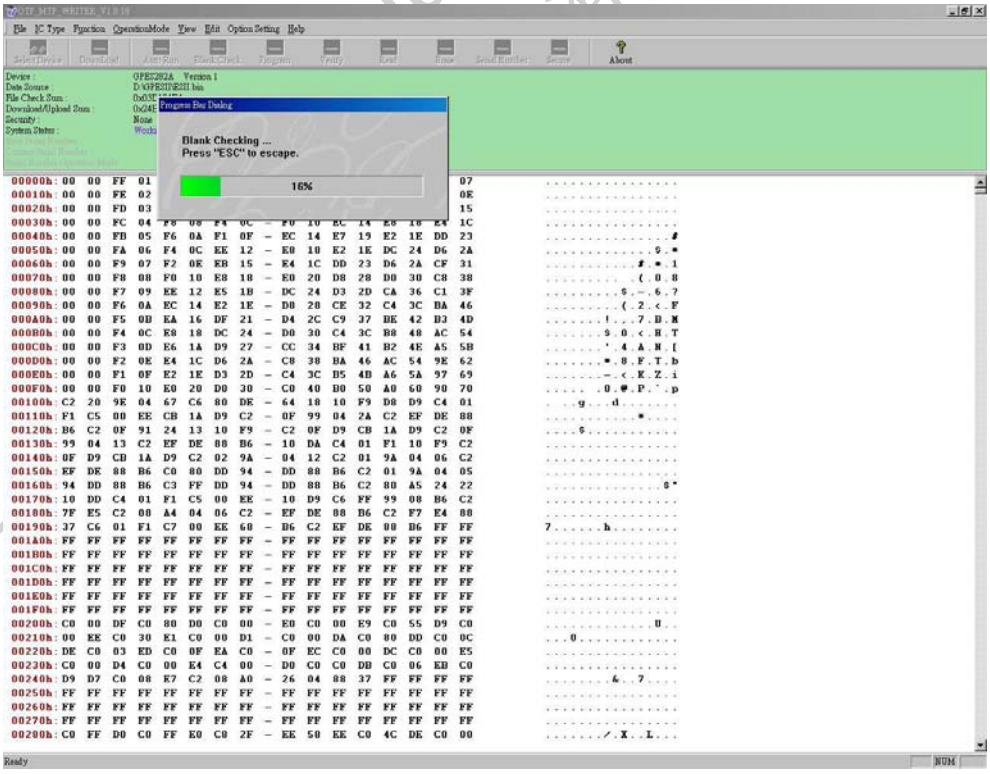
- Press “Blank Check” on the tool bar to check whether OTP is blank before programming.



- Progress status shows while blank checking.



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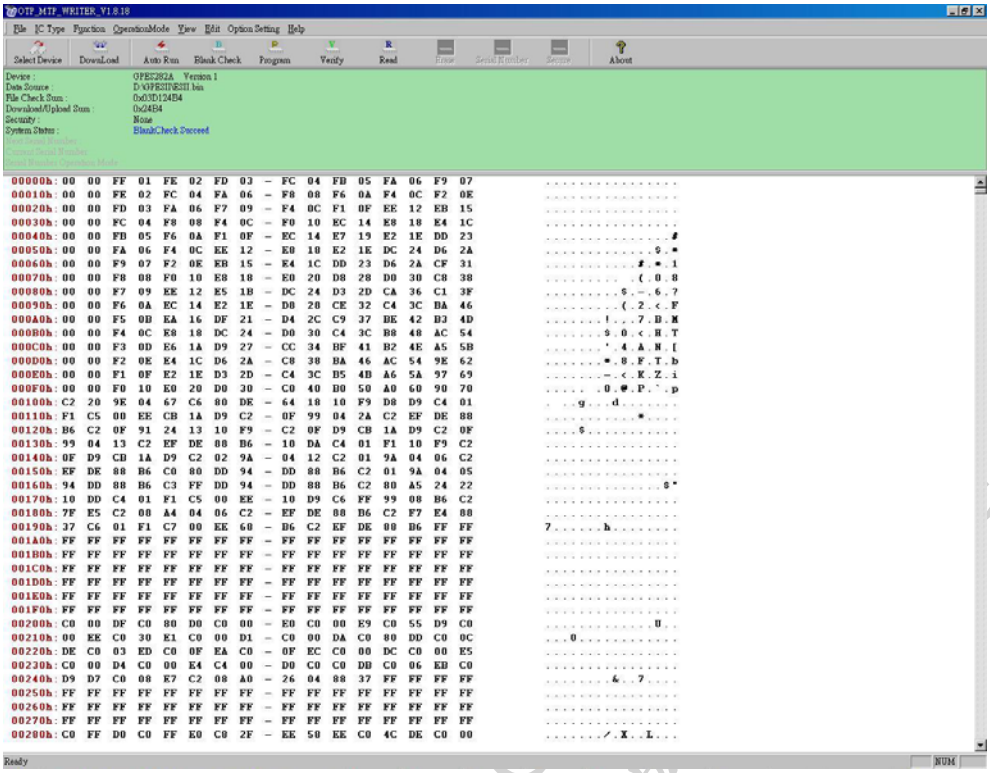
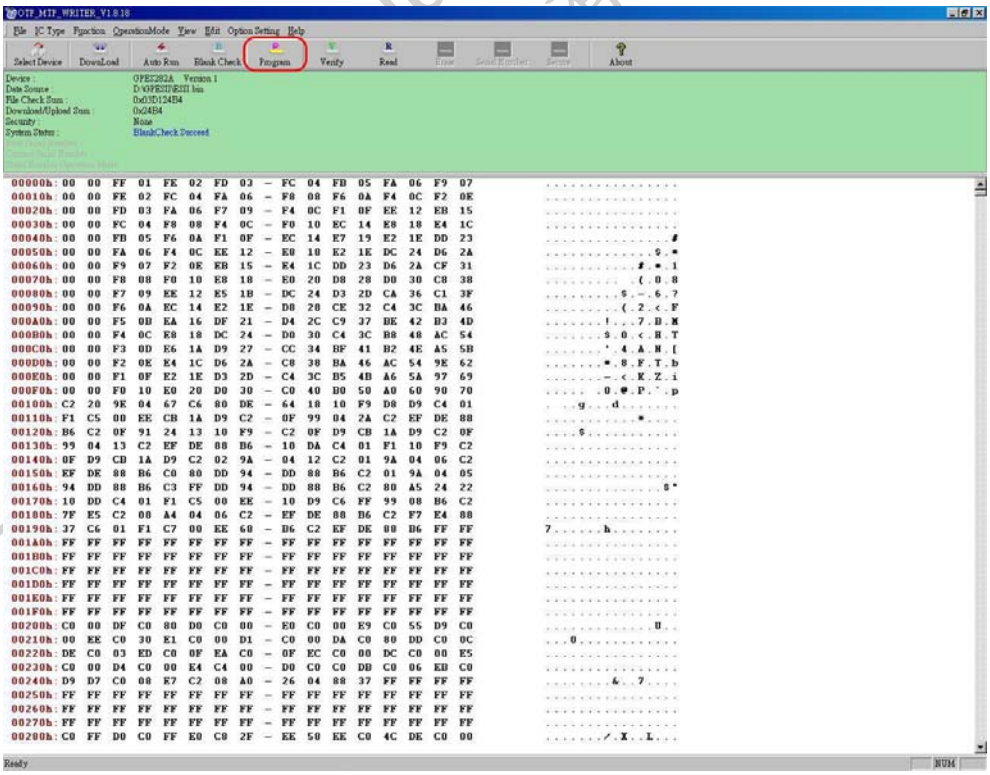
- System status shows succeed after blank checking is completed.



- Press “Program” on the tool bar to program OTP after blank checking is completed.



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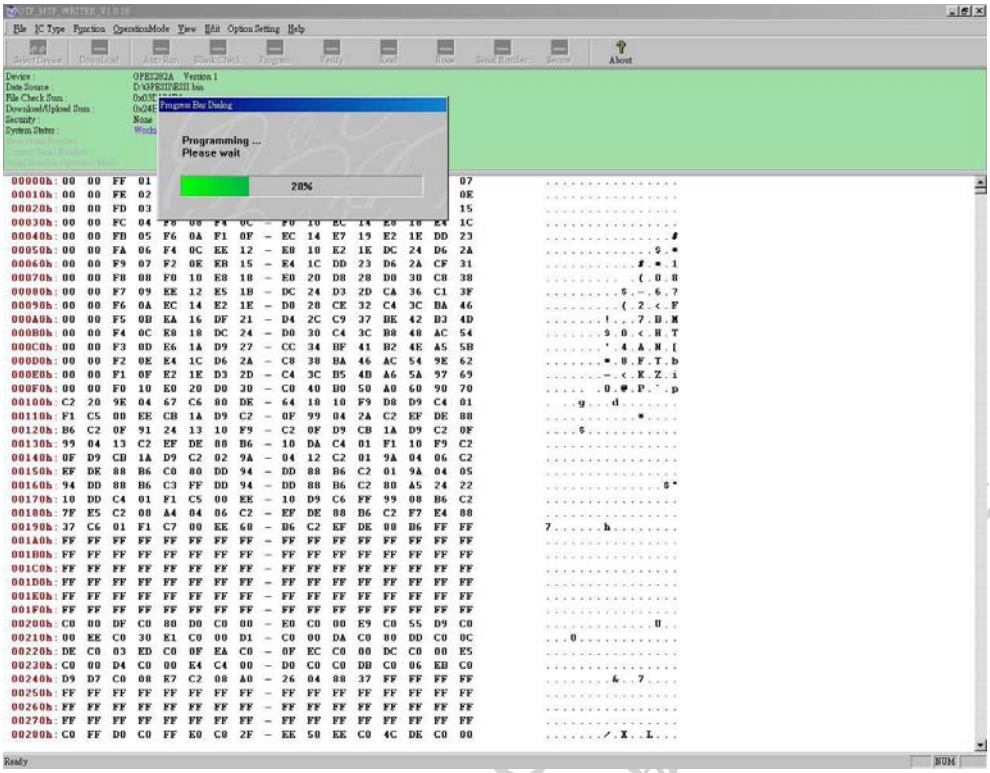
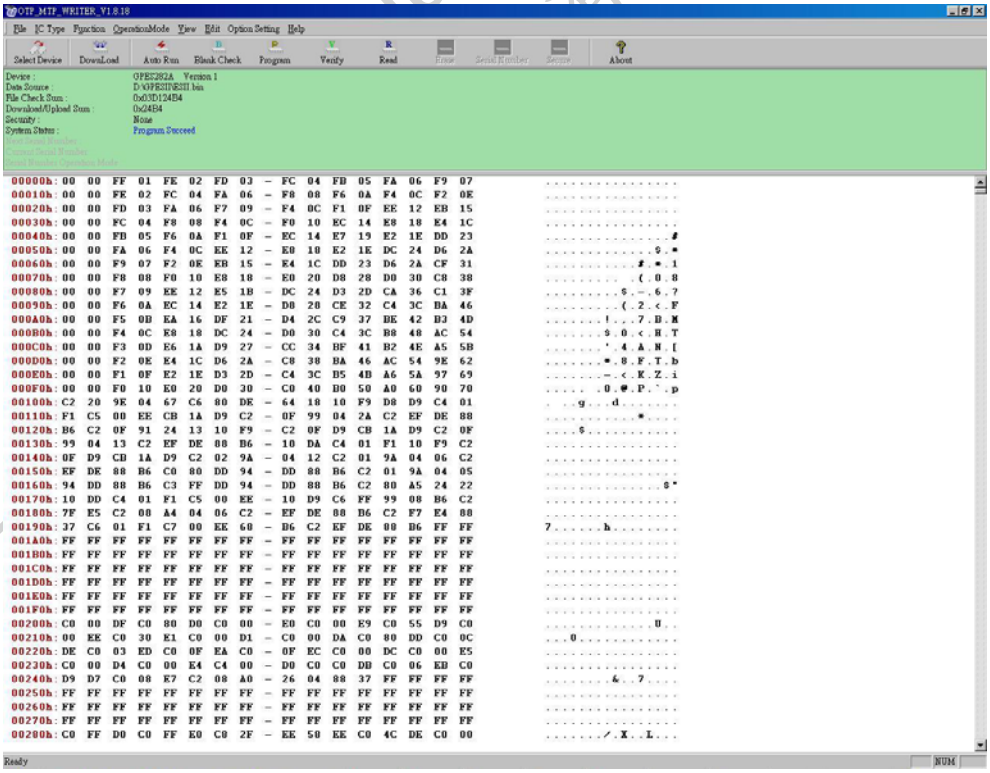
- Progress status shows while programming.



- System status indicates succeed after programming is completed.



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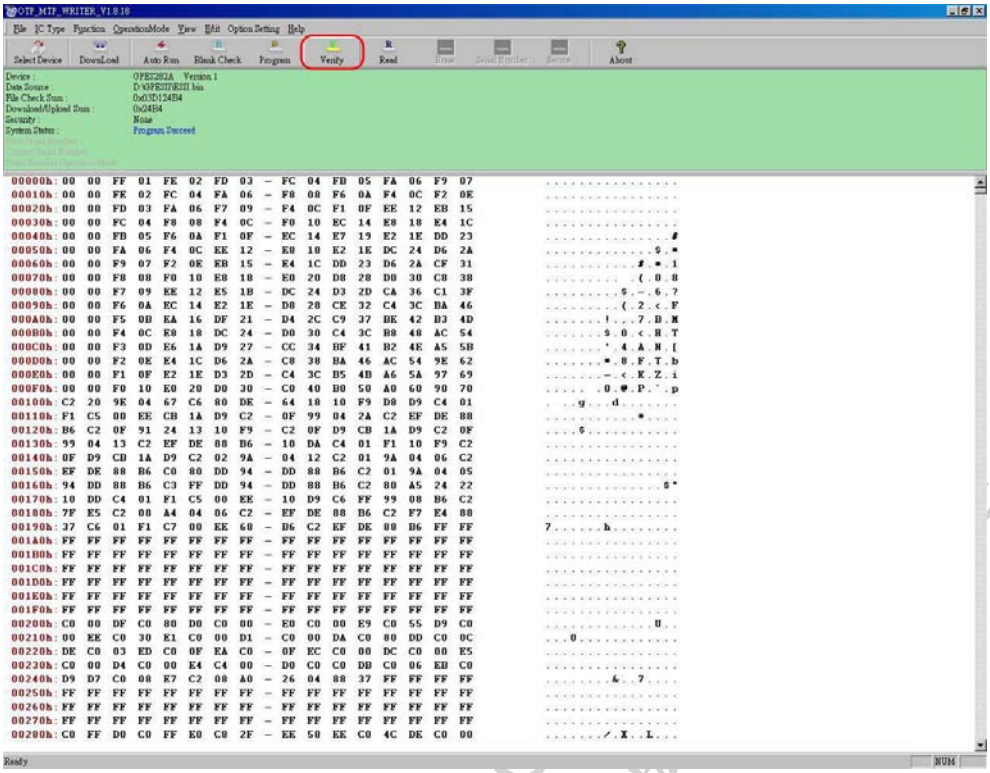
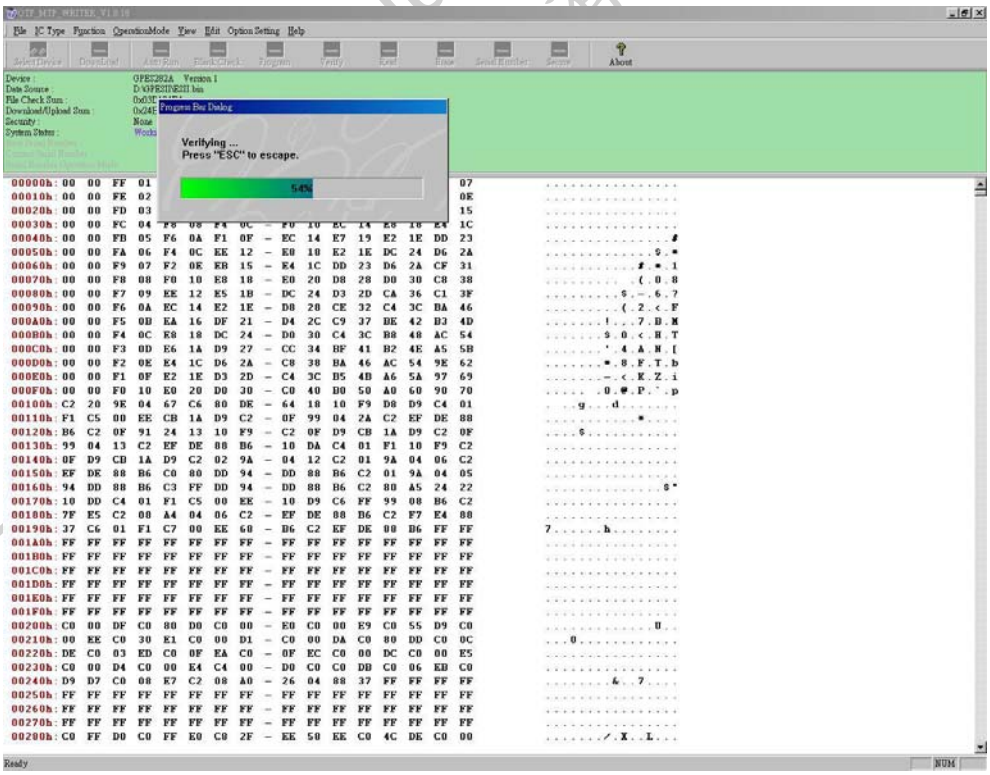
➢ Press “Verify” on the tool bar to verify the program in OTP.



➢ Progress status shows while verifying.



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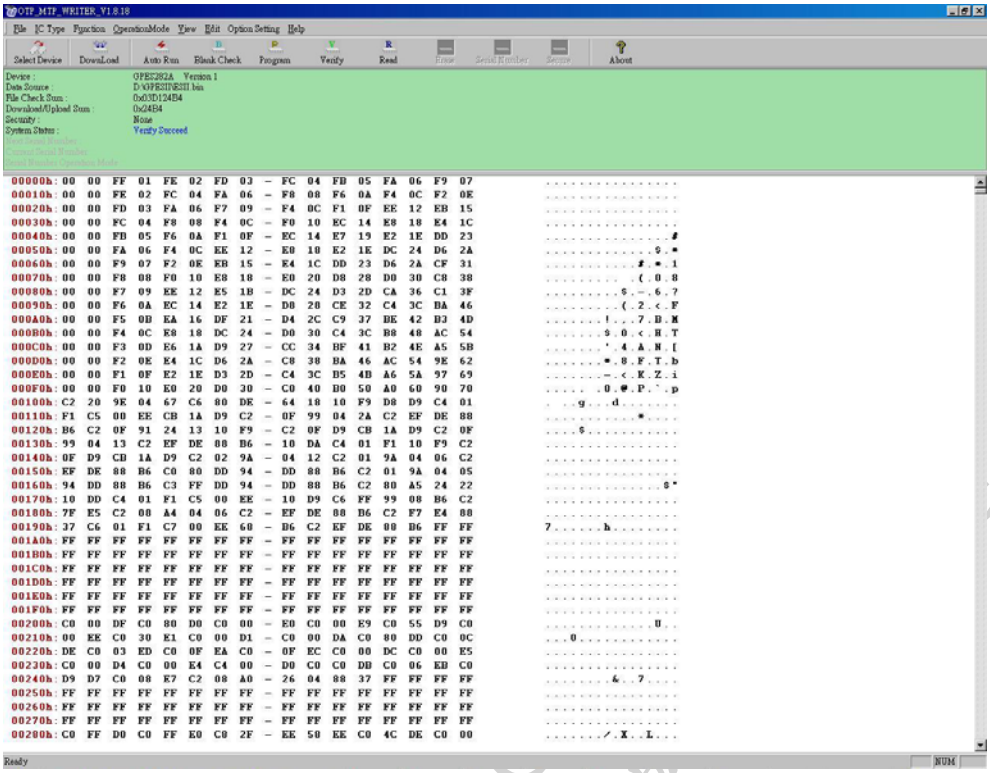
- After verification is completed, system status shows “Verify Succeed”.



Note: Generally speaking, OTP requires the following four steps to succeed in completing the programming process.

1. Download program file onto ALL WRITER.
2. Check OTP blank.
3. Program OTP
4. Verify program on OTP.

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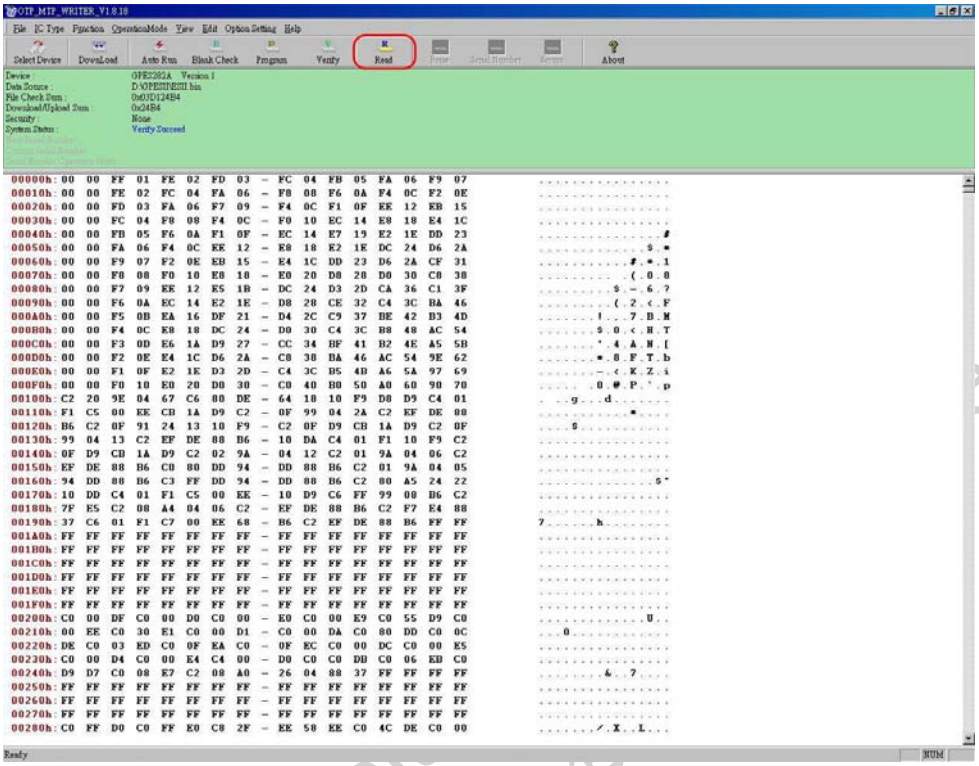
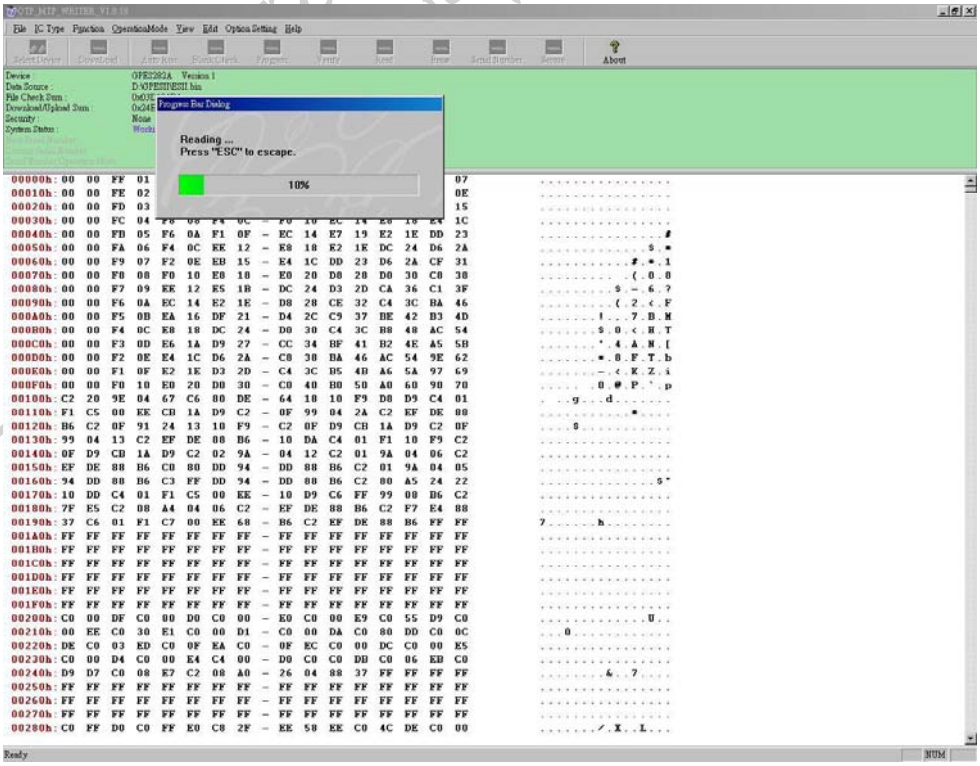
4.2 Read the Content of OTP

- Press “Read” on the tool bar to fetch data from OTP to PC.

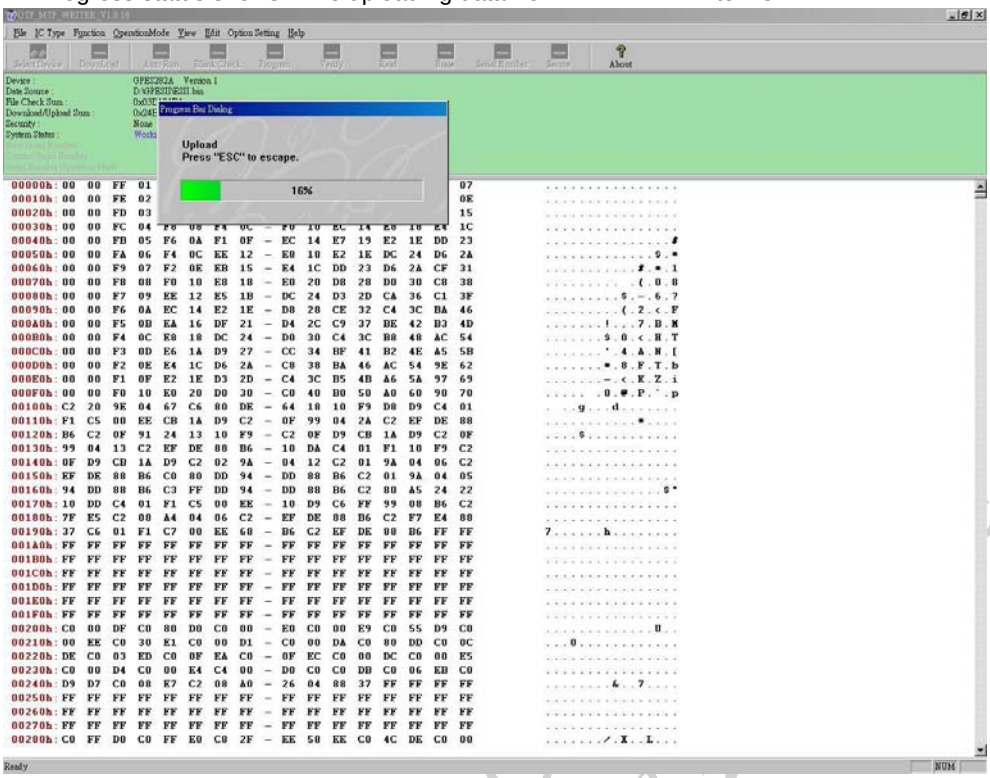


- Progress status shows while fetching data from OTP.

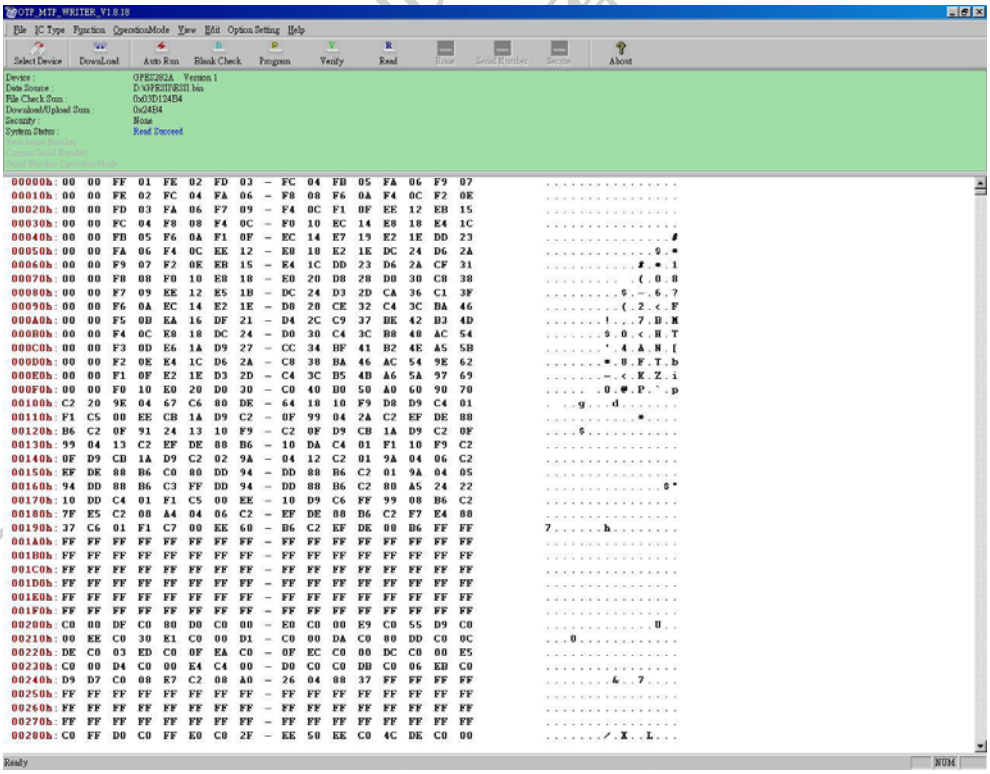


For Sample Only

- Progress status shows while uploading data from ALL WRITER to PC.



- System status shows “Read Succeed” after reading is successful and it also uploads the OTP data onto All Writer.



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4.3 Write the Program into OTP with Auto Run

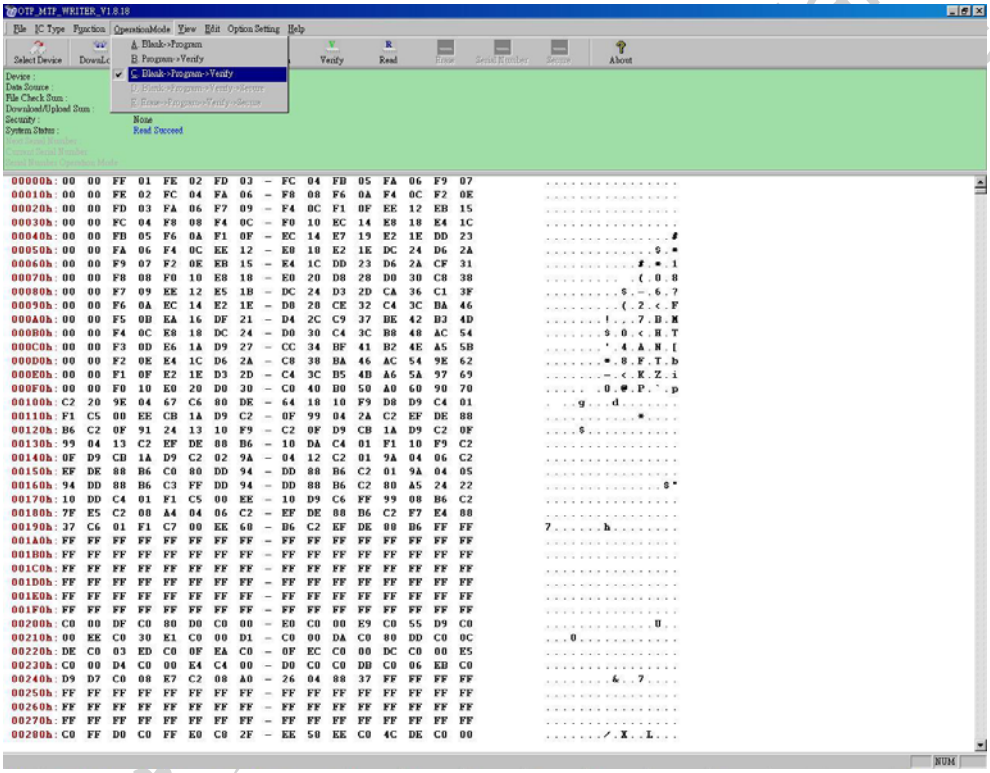
Users can use the Auto Run function to program OTP. Pushing one key allows All Writer to execute several activities. All Writer has three Auto Run options:

A. Blank-Program: All Writer runs Blank Checking and Programming functions

B. Program-Verify: All Writer runs Programming and Verifying functions

C. Blank-Program-Verify: All Writer runs Blank Checking, Programming, and Verifying functions.

➢ Select the Auto Run option.



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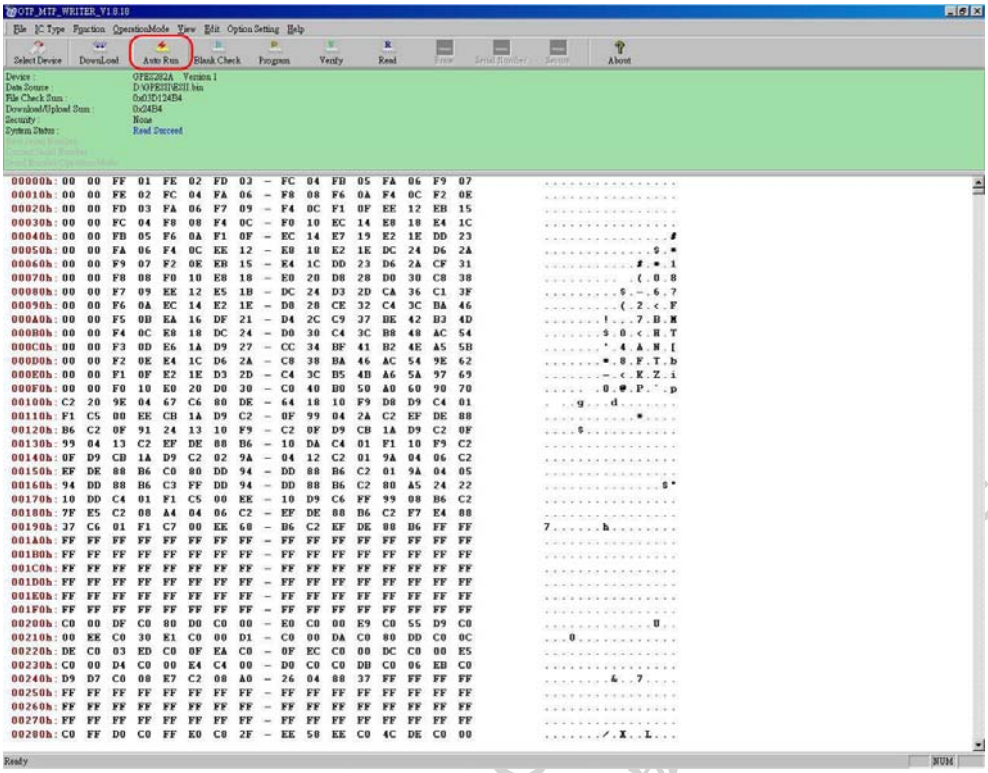
➢ After an option is determined, click the Auto Run on the Tool Bar to execute corresponding functions.



Note:

1. We recommend using C mode to perform blank-checking, programming, and verifying functions.
2. Before programming an OTP, make sure the options are correctly set for the user's binary file via the GPES2 Option tool and use new file generated by the Tool for programming.

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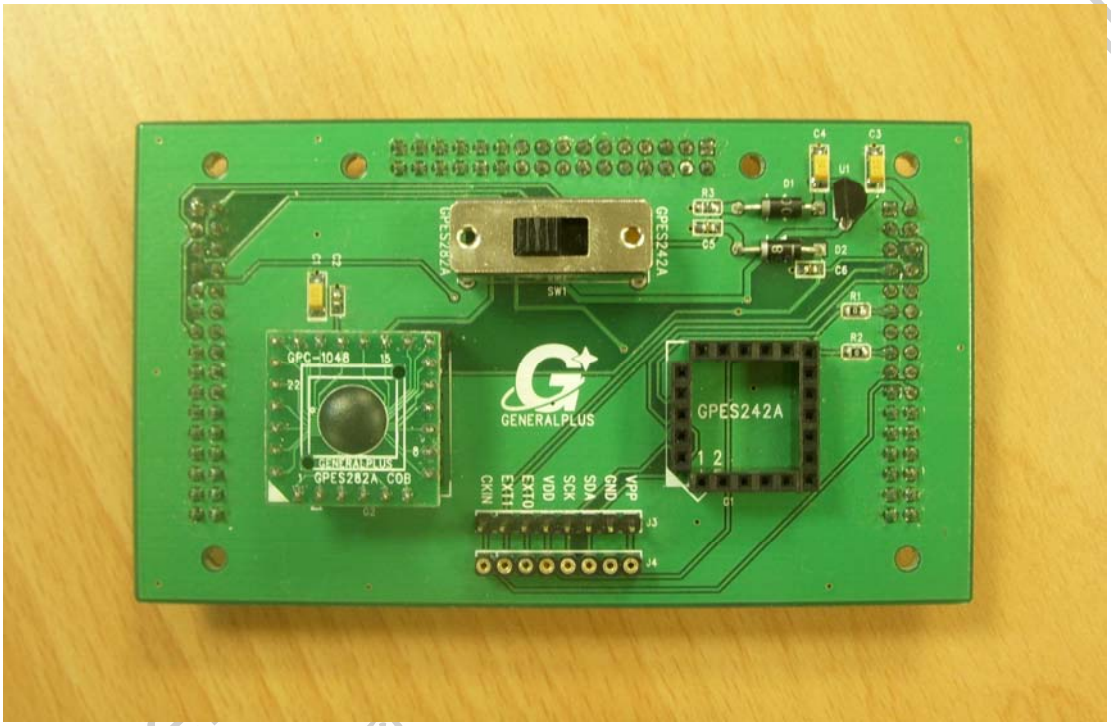
5 HOW TO USE THE G+ USB ALL WRITER

5.1 Write the Program into OTP Step by Step

The following sections describe how to program an OTP using G+ USB ALL WRITER.

- According to the orientation below, insert the GPES242A/GPES282A OTP COB on Daughter Board and insert the Daughter Board onto ALL WRITER.



Note: Based on the programmed IC types, select GPES242A or GPES282A via SW1,

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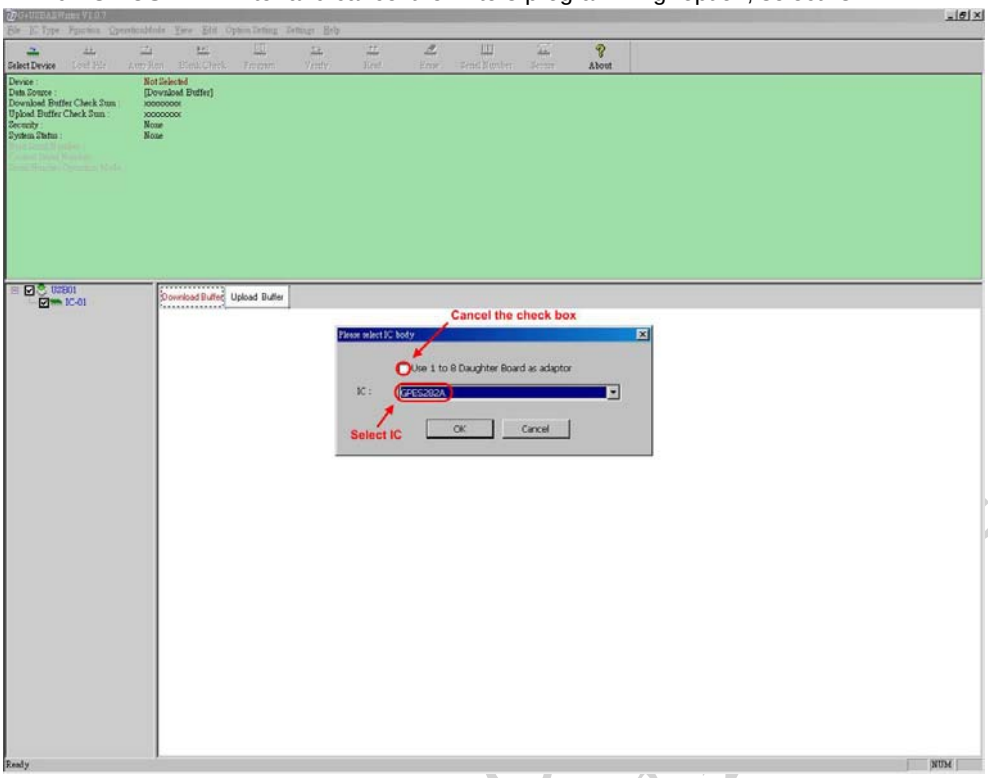
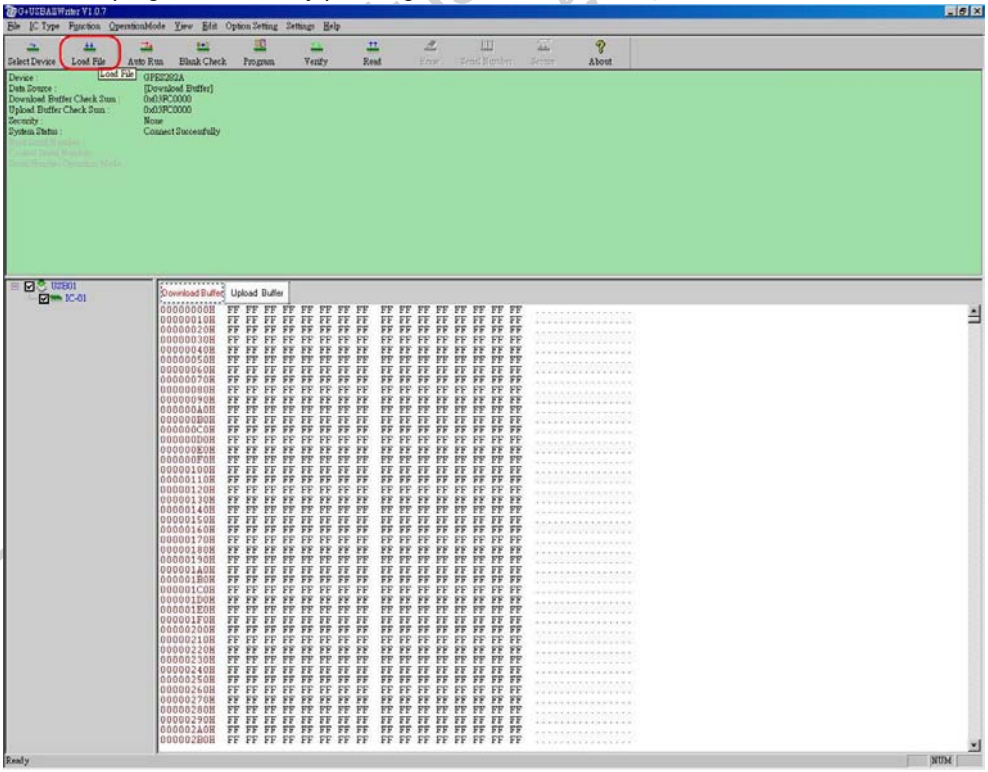
- Run G+ USB All Writer and cancel the “1 to 8 programming” option; select IC.



- Select programmed file by pressing “Load File” on the tool bar.



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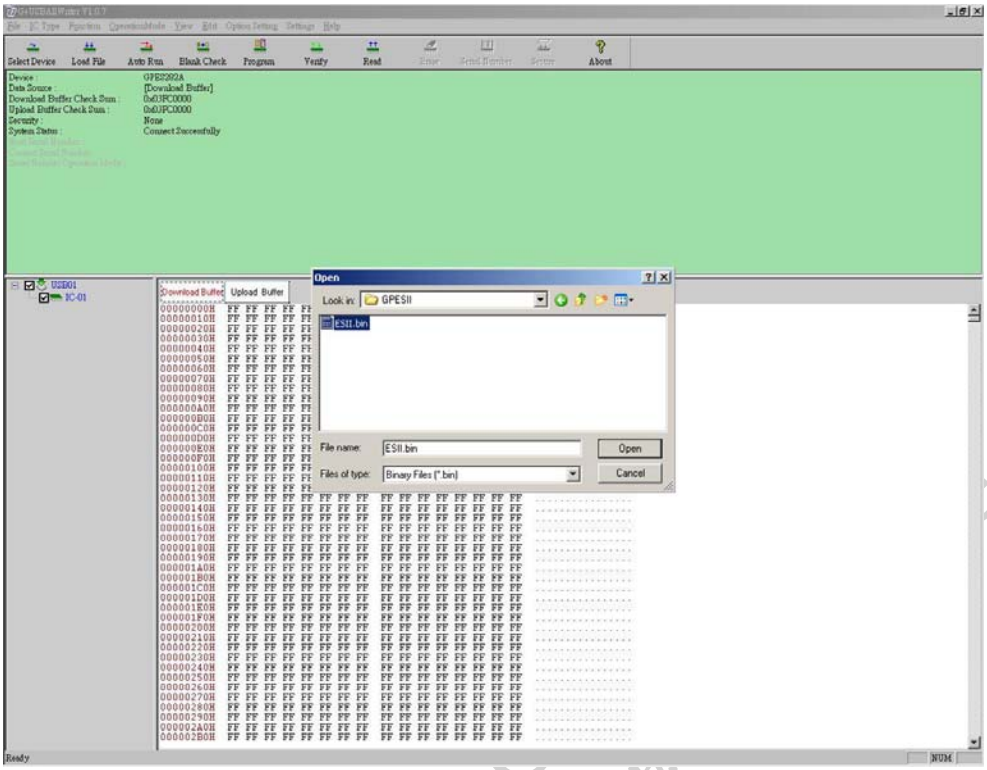
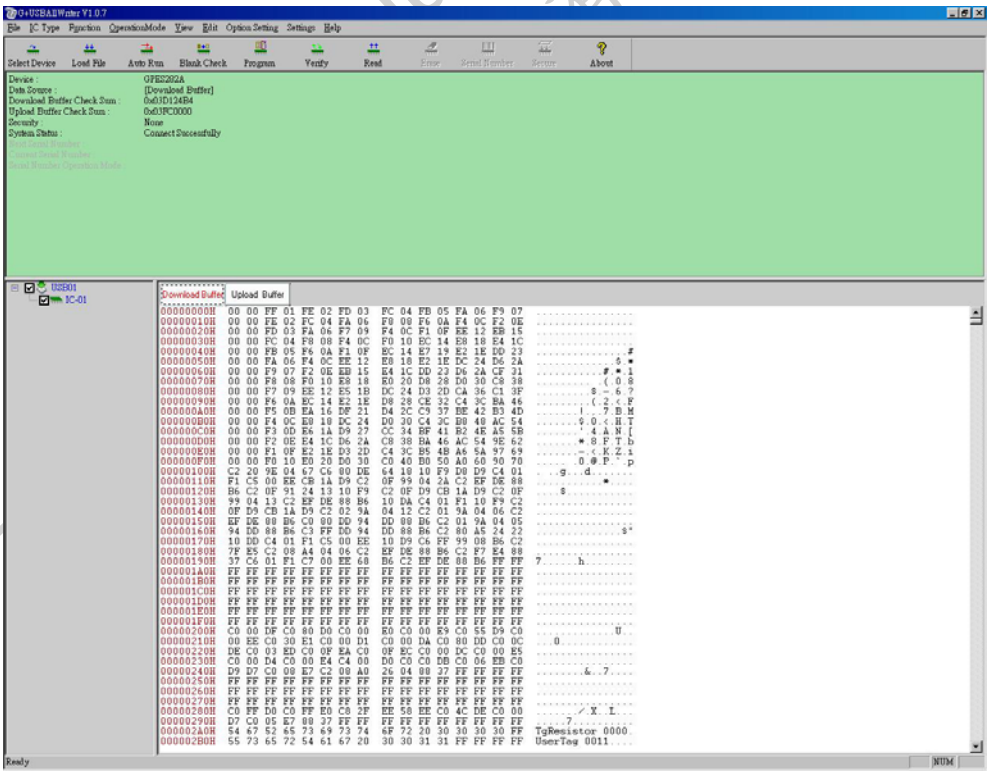
- Select a file and click open to download codes onto WRITER.



- After download is completed, file's checksum is shown on screen.



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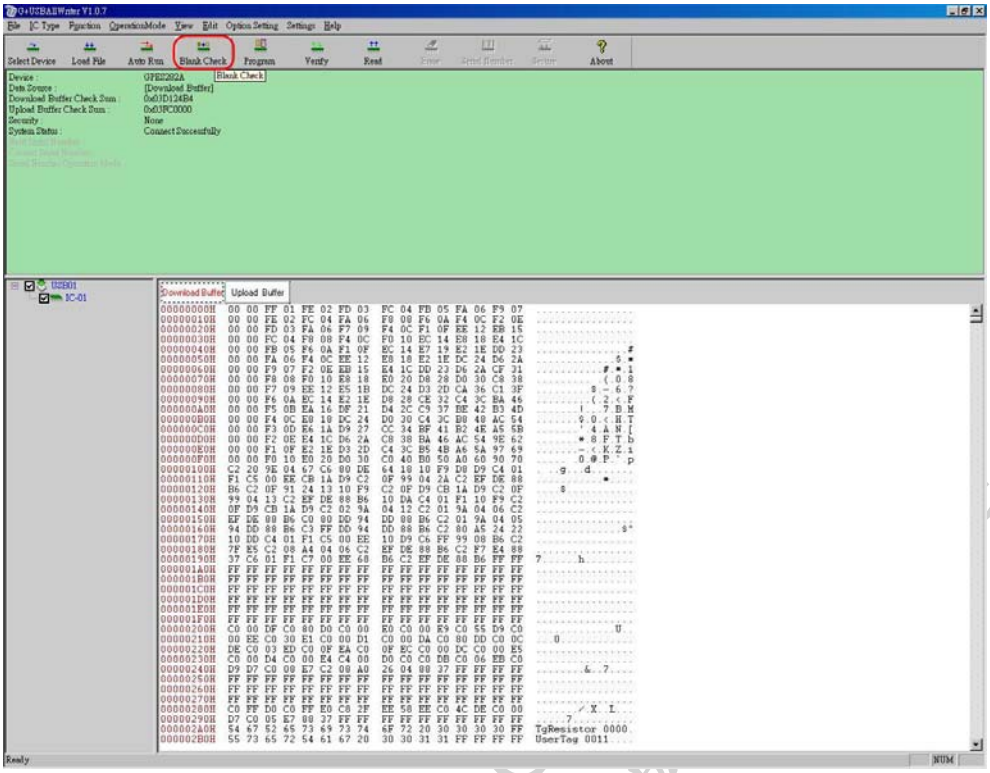
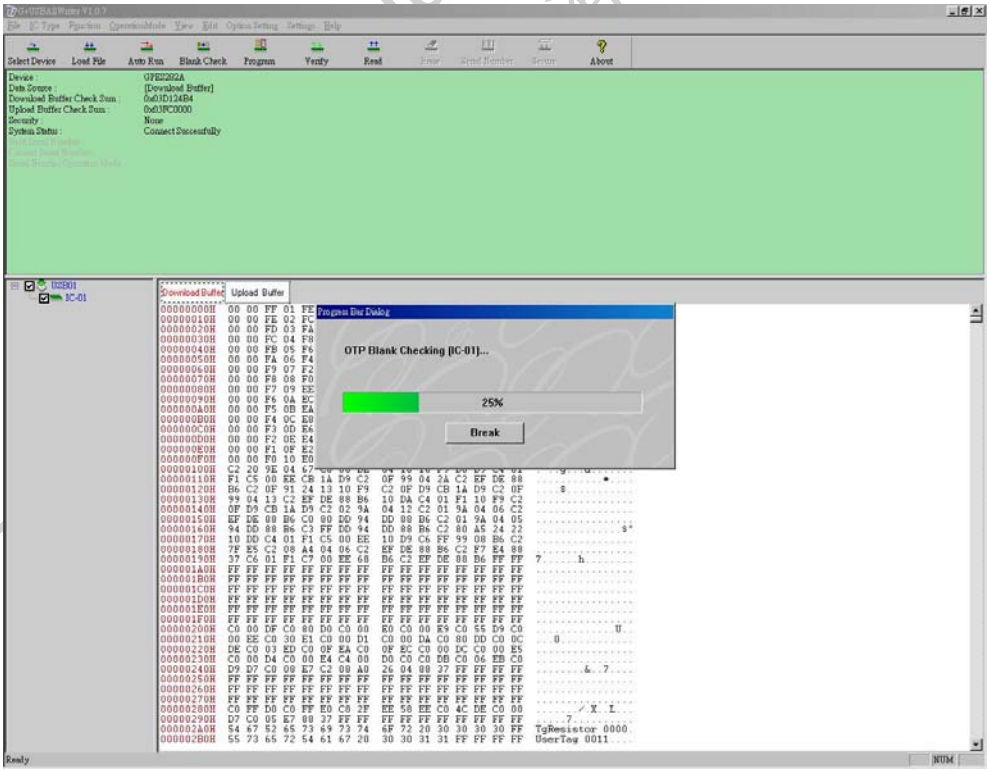
➢ Press the blank check button on the tool bar to concur if OTP is in blank status before programming.



➢ Progress status shows while blank-checking.



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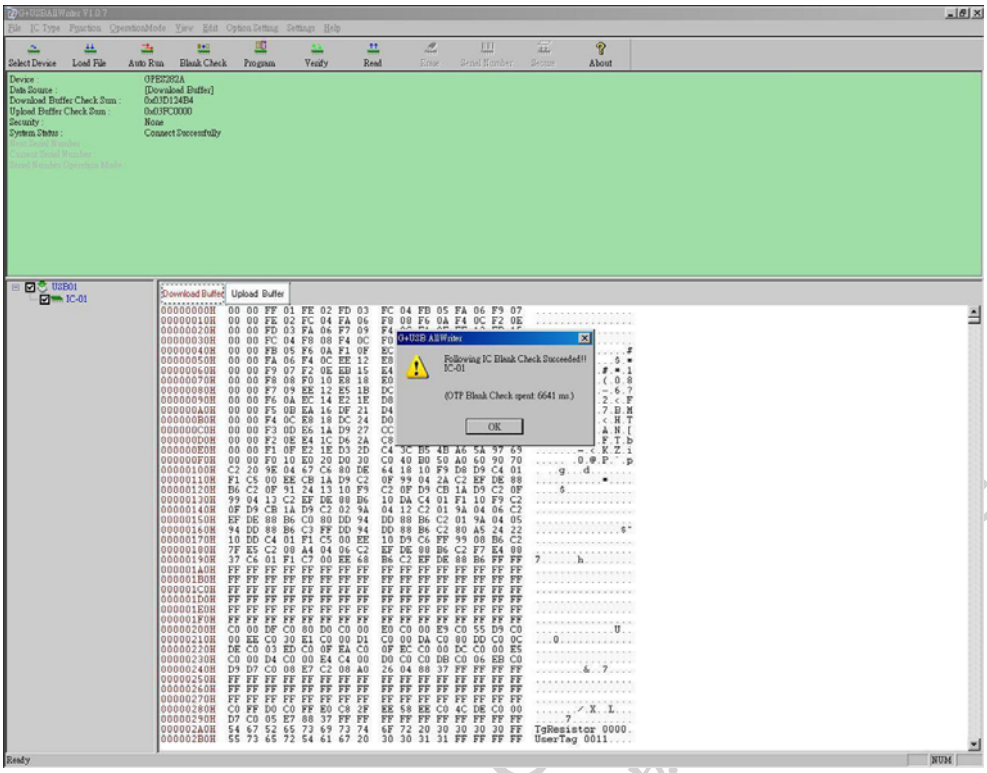
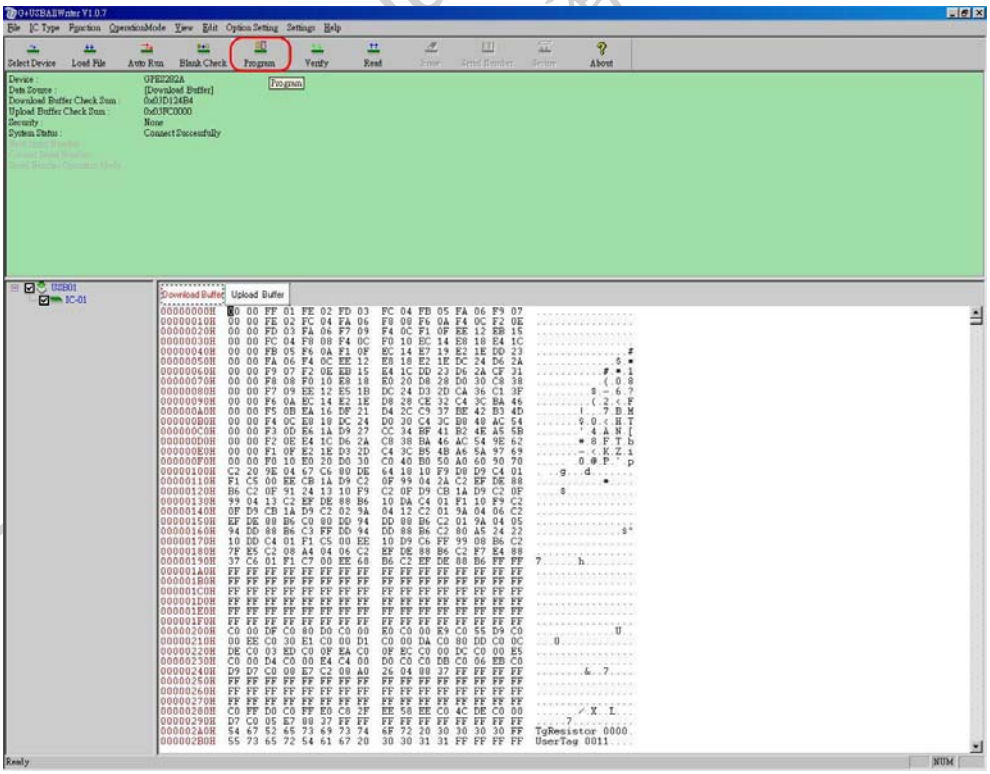
- Message indicates after blank checking is completed.



- After blank check is completed, press the program button on the tool bar to program OTP.



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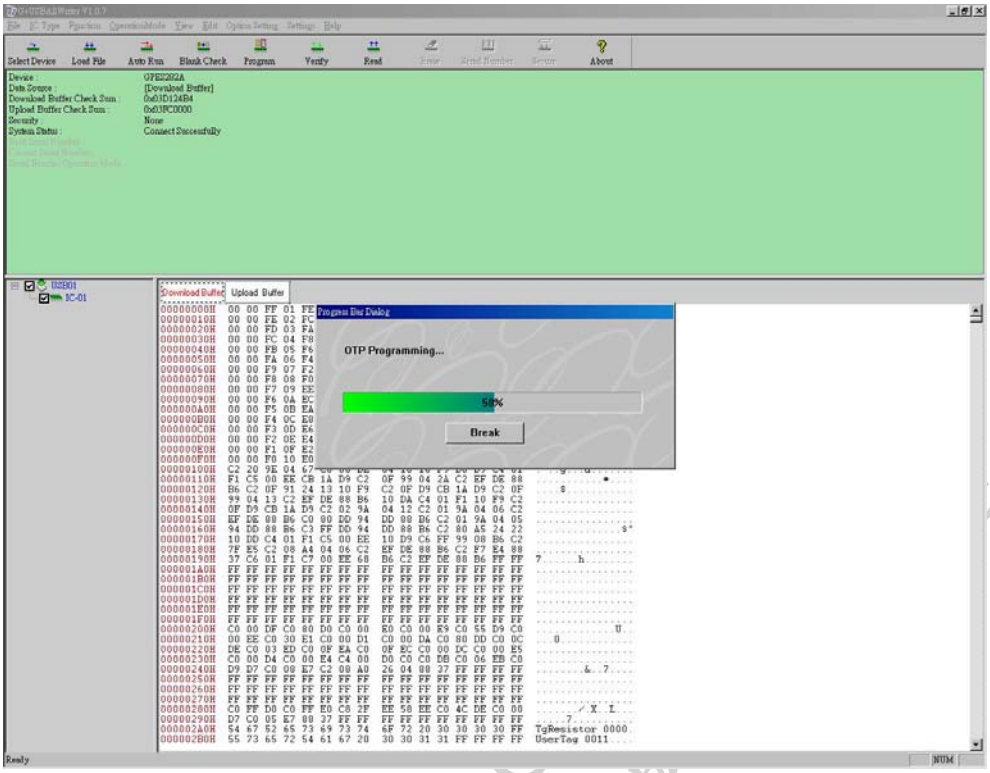
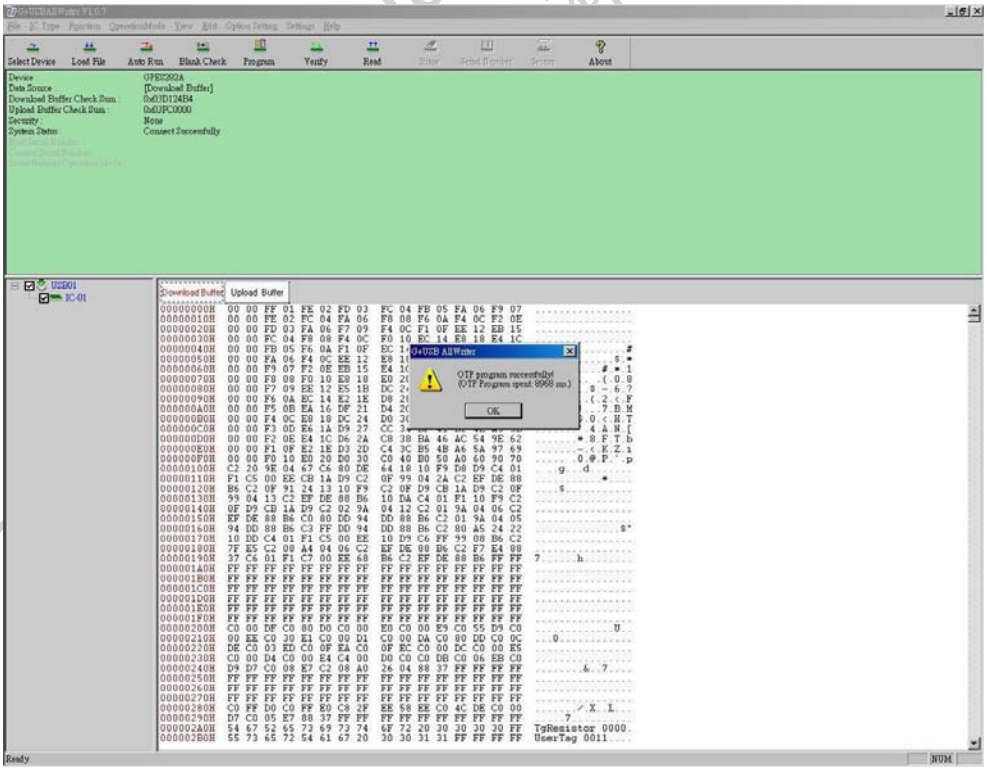
- Progress status shows while programming.



- Message indicates after programming is completed.



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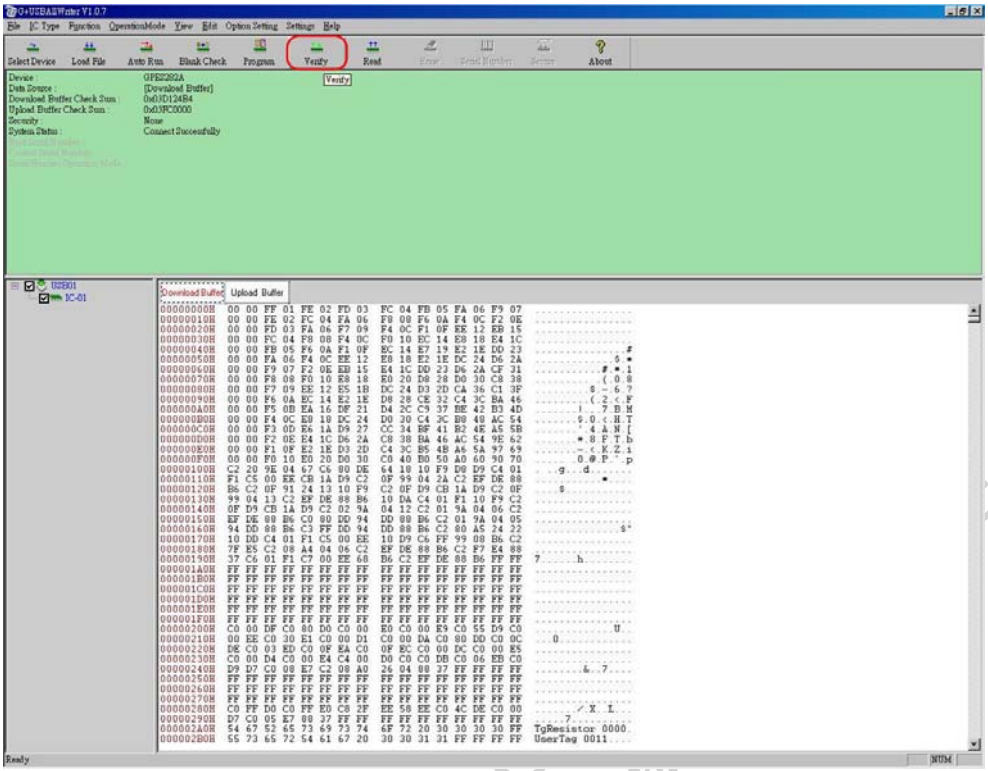
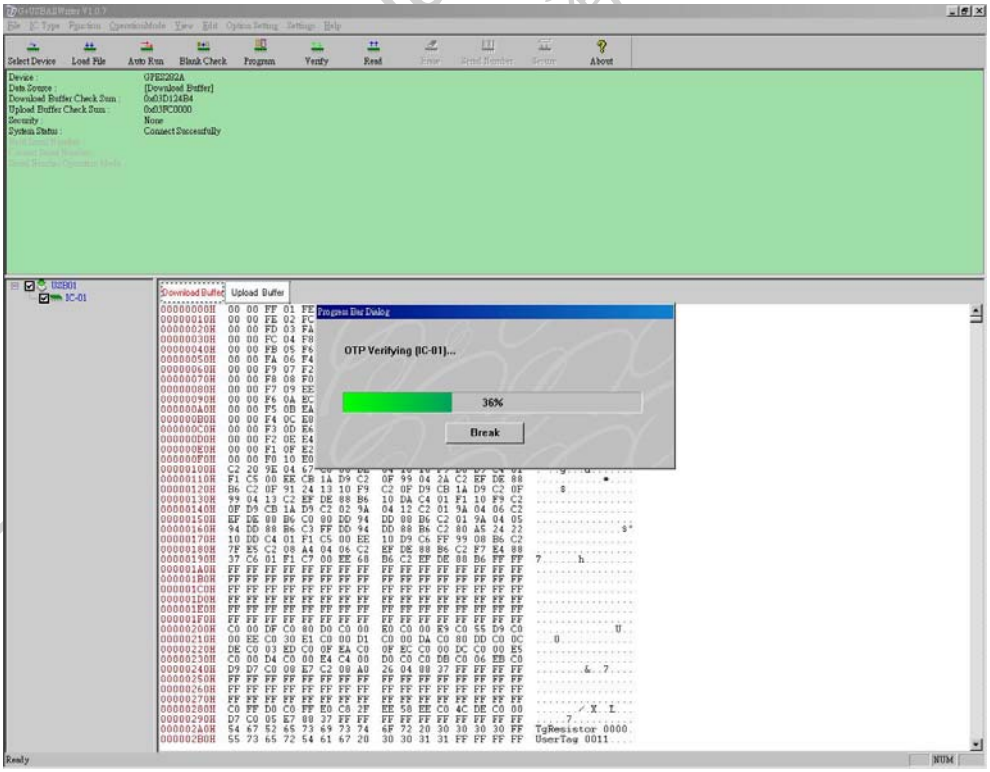
- After programming is completed, press the verify button on the tool bar to verify code on OTP.



- Progress status shows while verifying.



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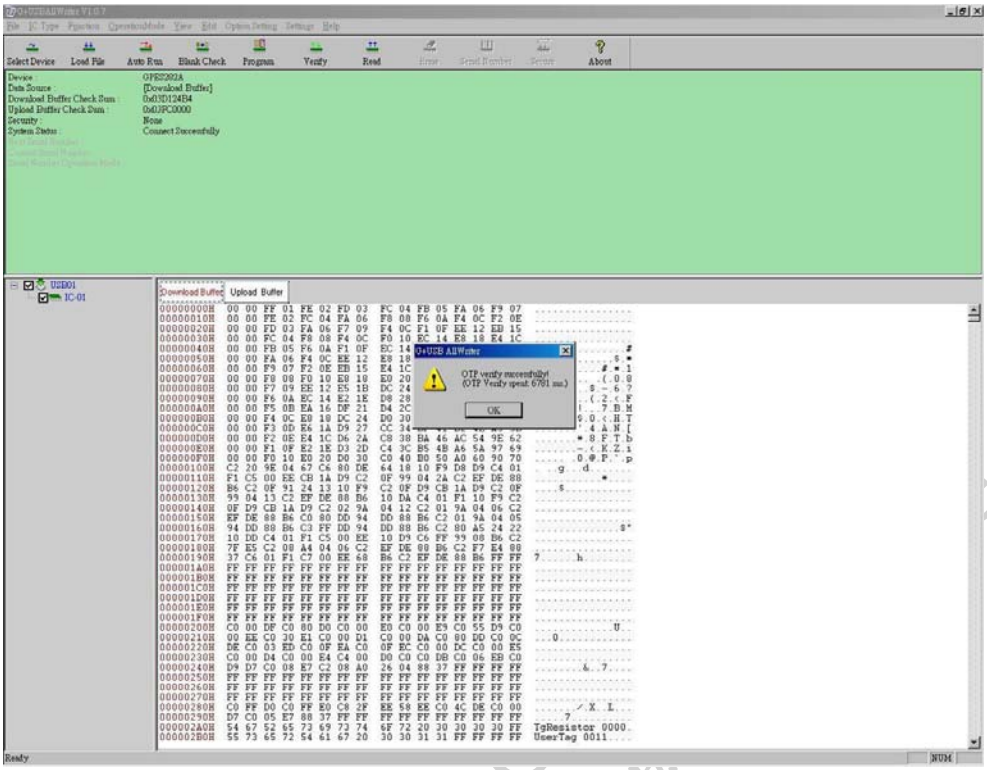
- Message indicates after verification is completed.



Note: Generally speaking, OTP requires the following four steps to succeed in completing the programming process.

1. Download program file onto ALL WRITER.
2. Check OTP blank.
3. Program OTP
4. Verify program on OTP.

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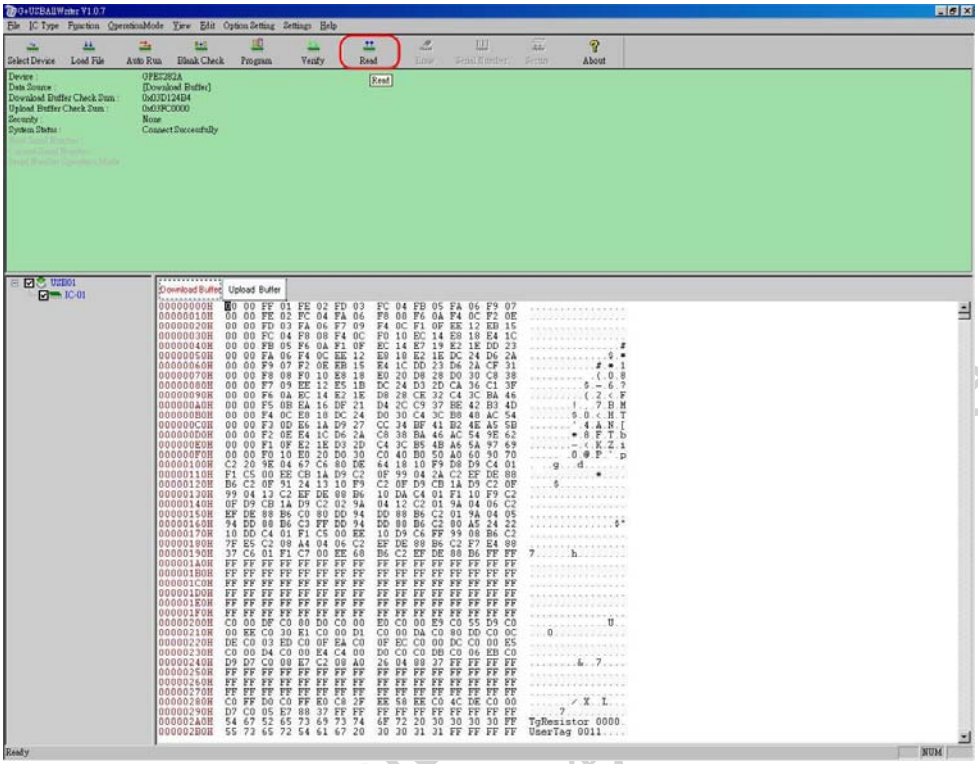
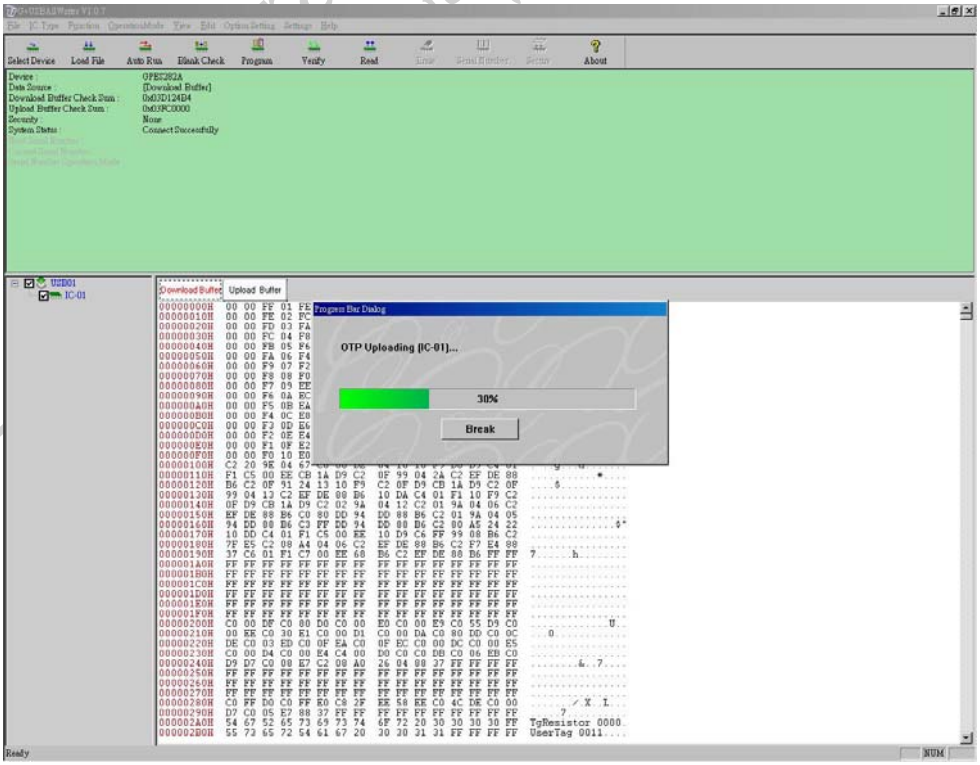
5.2 Read the Content of OTP

- Press the Read button on the tool bar to read OTP data onto PC.

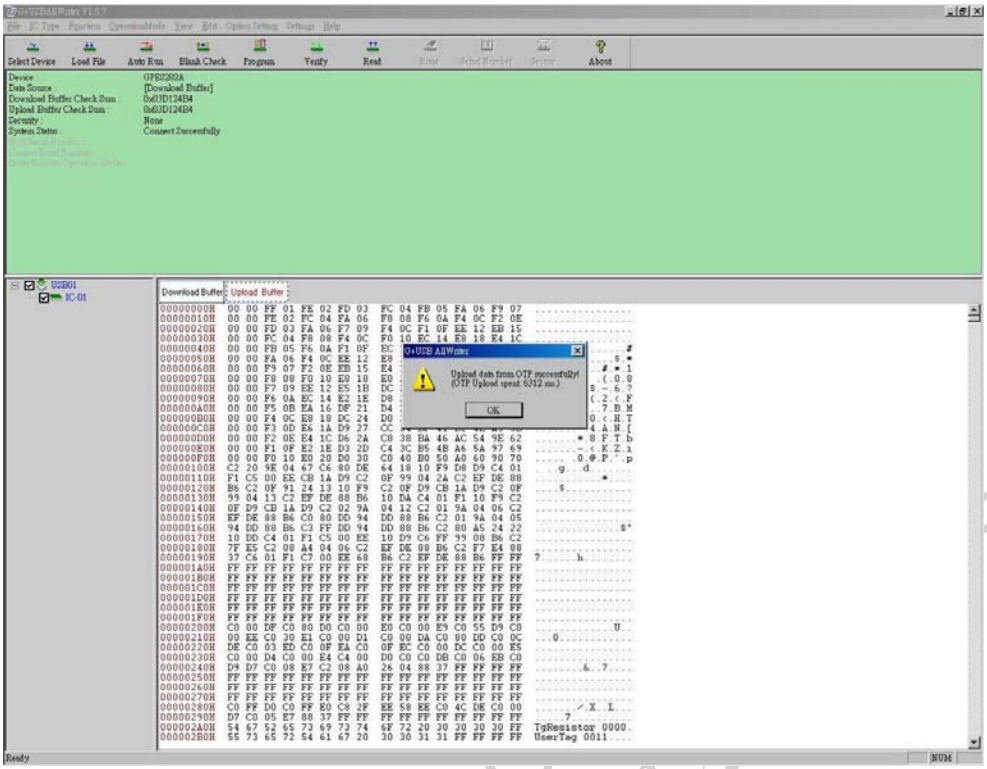


- Uploading means ALL WRITER is reading OTP, progress status shown on the screen.

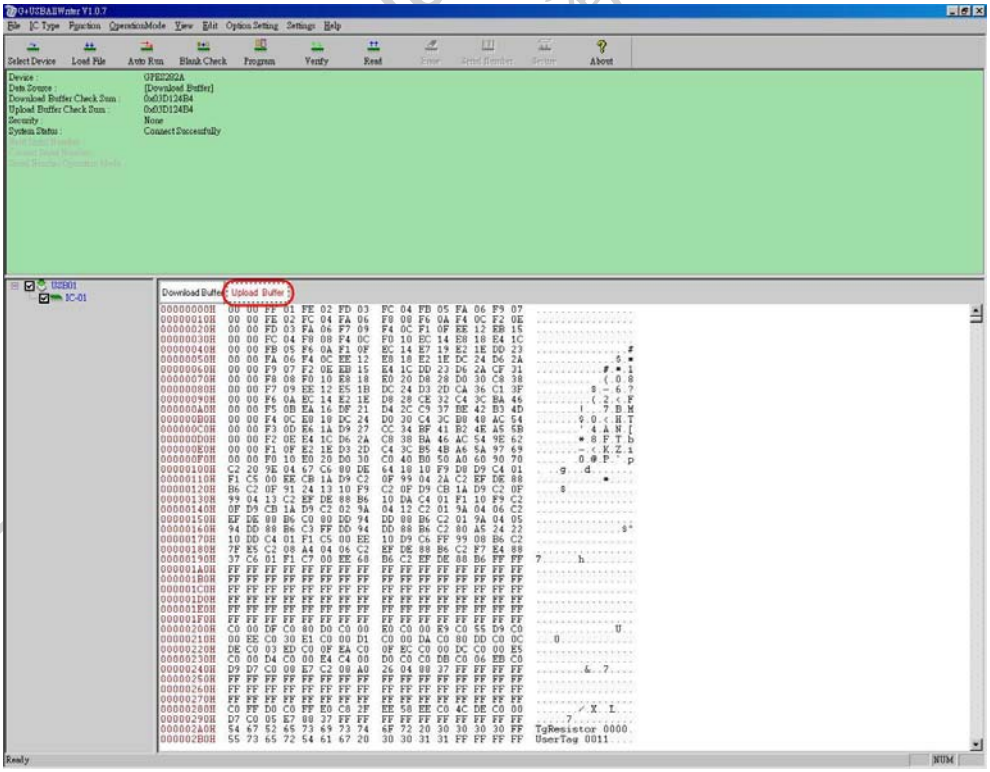


For Application Note Only

- Message indicates after reading is completed.



- After read is completed and successful, switch screen from Buffer Window to Upload Buffer Window to view the OTP contents.



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5.3 Write the Program into OTP with Auto Run

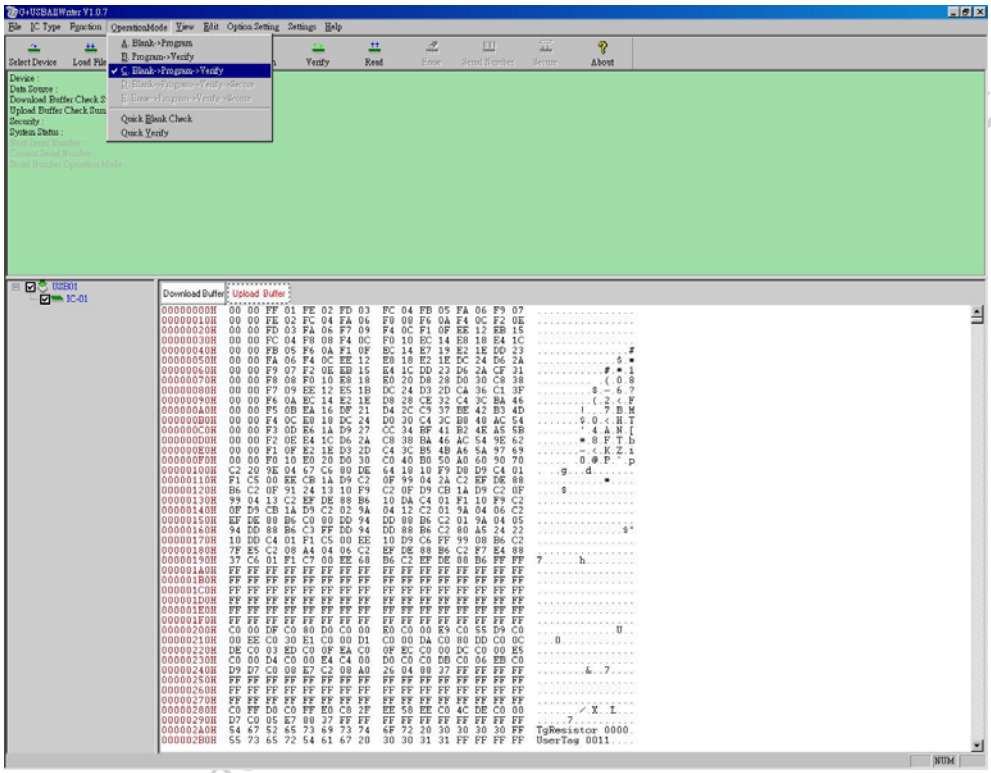
Users can use the Auto Run function to program OTP. Pushing one key allows All Writer to execute several activities. All Writer has three Auto Run options:

A. Blank-Program: All Writer runs Blank Checking and Programming functions

B. Program-Verify: All Writer runs Programming and Verifying functions

C. Blank-Program-Verify: All Writer runs Blank Checking, Programming, and Verifying functions.

➢ Select the Auto Run option.



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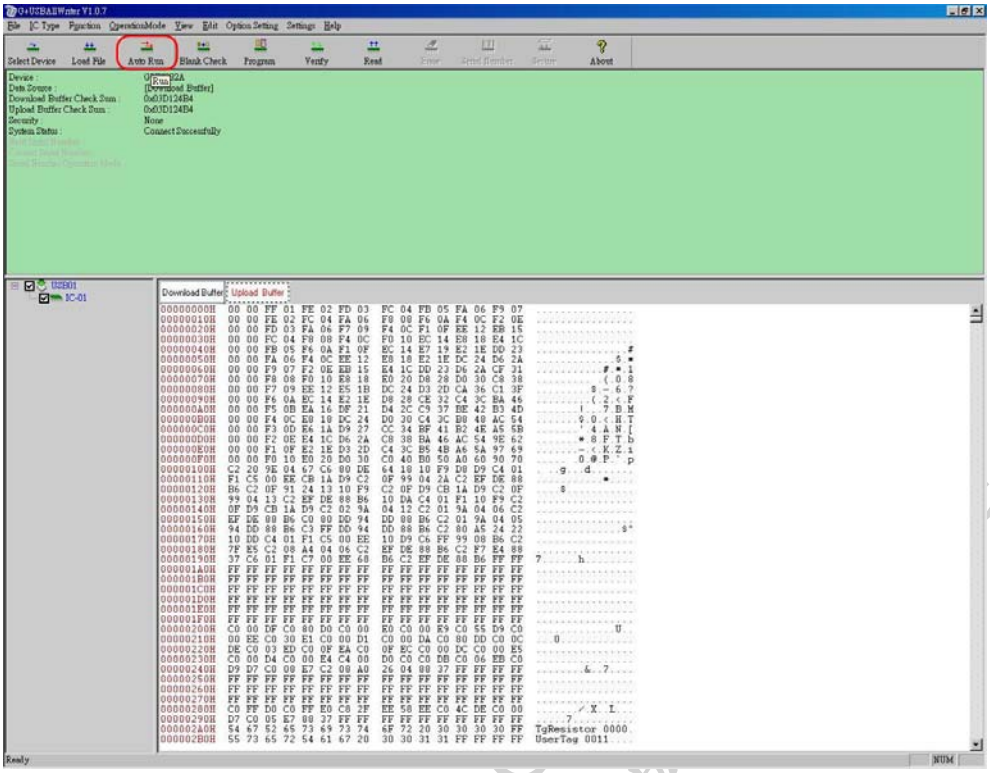
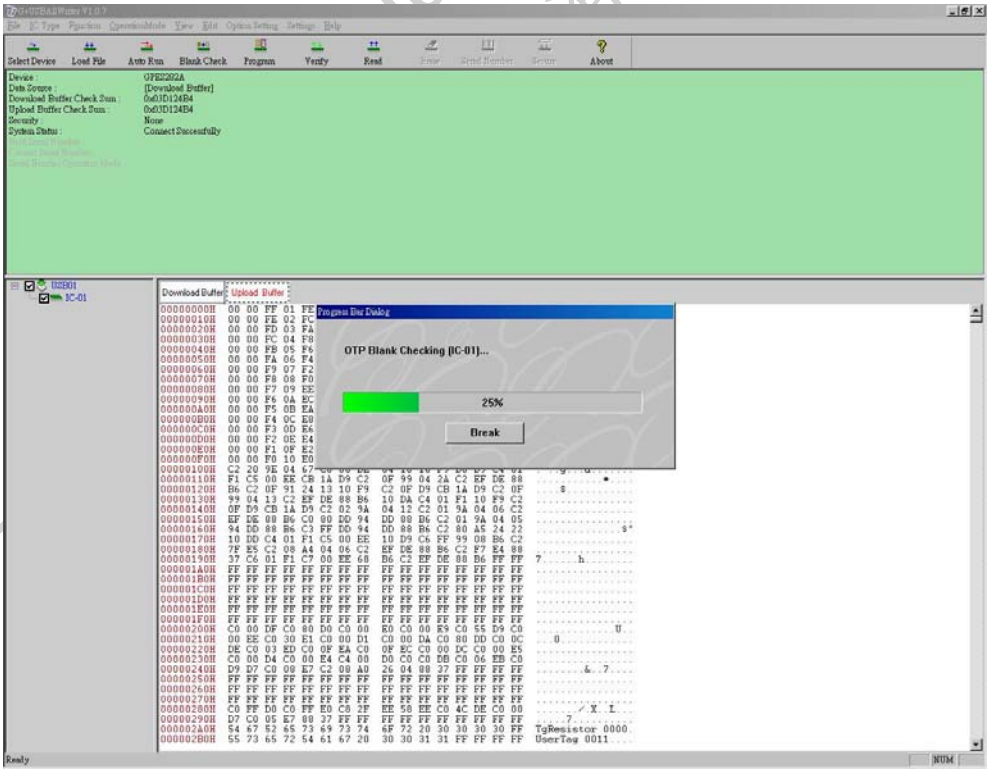
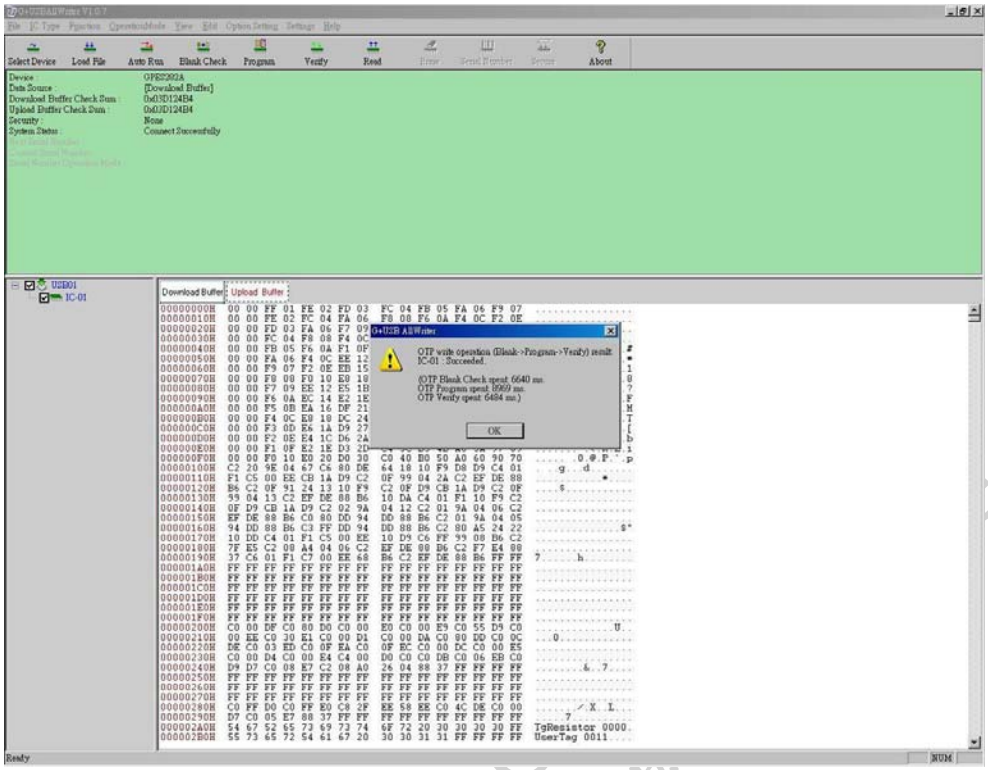
- After an option is determined, click the Auto Run on the Tool Bar to execute corresponding functions.



- Status of each activity will be shown on screen while Auto Run is executing.



- Message shows after Auto Run is completed.



Note:

1. We recommend using C mode to perform blank-checking, programming, and verifying functions.
2. Before programming OTP, make sure the options are correctly set for the user's binary file via the GPES2 Option tool and use new file generated by the Tool for programming.

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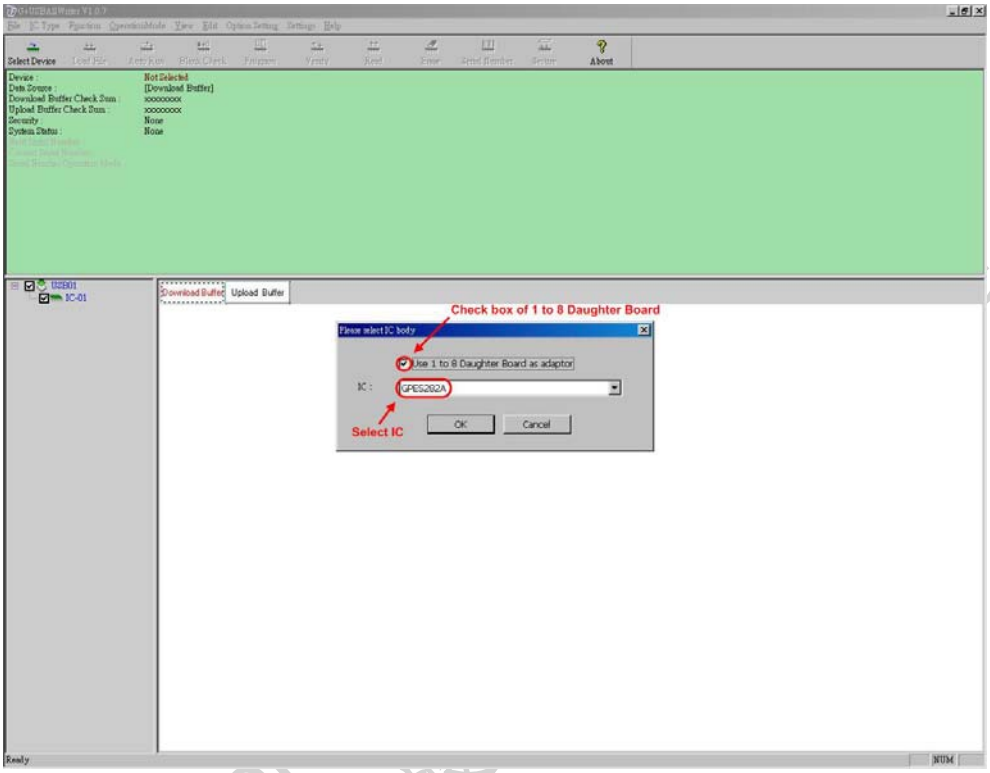
5.4 Write Program into OTP with Multi-Programming Adapter

The Multi-Programming Adapter is to program more than one OTP at a time.

- Run All Writer; select IC and enable 1-to-8 Daughter Board option.



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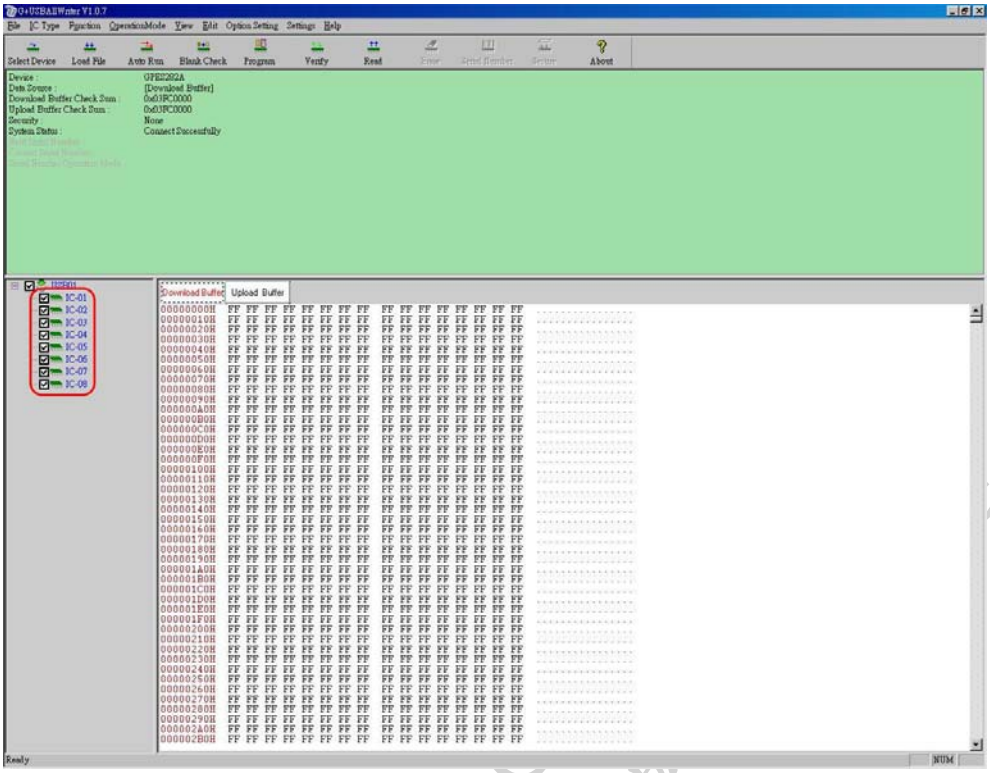
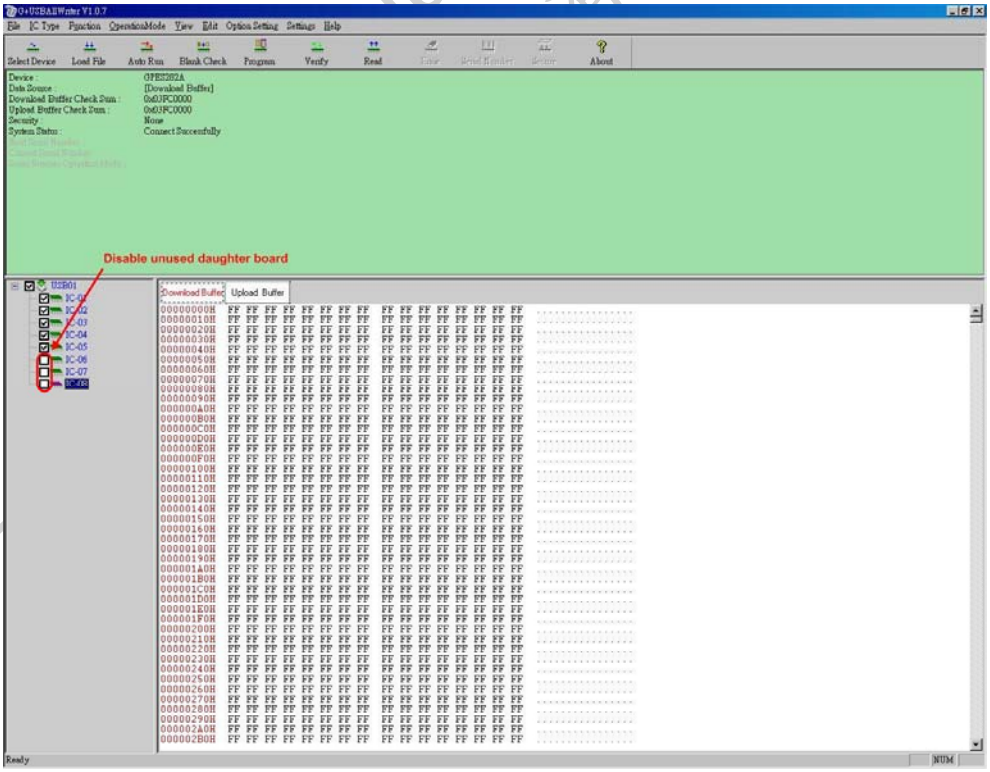
- Enable the Daughter Board(s) on the left window.



- You may disable the non-used Daughter Board Port.



Note: Up to 8 OTP at a time to perform Auto Running, Blank Checking, Programming, Verifying and Reading functions.

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